

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 662.—VOL. XVIII.

LONDON, SATURDAY, APRIL 29, 1848.

[PRICE 6D.]

TO IRONMASTERS.—TO BE SOLD, BY AUCTION, by Mr. NICHOLSON, at the ANGEL INN, CHESTERFIELD, on Monday, the 1st day of May next, at Three o'clock in the afternoon, for Four precisely, and subject to conditions, to be then produced, the unexpired TERM in a LEASE of COAL and IRONSTONE MINES, situated in the parish of SUTTON-CUM-DUCKMANTON and CHESTERFIELD, in the county of Derby.

To an approved purchaser, an extended lease would be granted of the several beds of coal and ironstone, which are well known as being of the best quality, and capable of being worked in the greatest advantage, at an unusually small cost.

The STEAM-ENGINE, MACHINERY, and other requisite APPARATUS for the carrying on of the extensive PLANT, known as the ADELPHI IRON-WORKS, situated three miles from the Chesterfield Station, on the Midland Railway, must be taken too, AT A VALUATION.

Further particulars may be had on application to Mr. Mills, land agent, Chesterfield; Mr. Richard Coke, Langton, near Alfreton; or to Messrs. Lucas and Cutts, solicitors, Chesterfield.—Chesterfield, April 17, 1848.

SILVER VALLEY.—GEO. CARNE respectfully announces the ORDER of this SALE, will be as follows:—

TUESDAY, the 2d MAY, WILL BE SOLD, The COMBINED CYLINDER ENGINE (on Sims's principle, erected by West), with the boiler and condensing work; the shears, capstans, and whisks; the pit-work, comprising 120 fathoms of 8, 9, 10, 12, and 13-inch pumps and workings, complete; balance and angle bolts; two B B capstan chains, horizontal and main rods, with snapping plates, pulleys, and stands; powerful wrench, bell, quantity of timber, plank, &c.

WEDNESDAY, the 3d MAY, The TWO WATER-WHEELS and STAMPS attached; the dressing floors, wood houses, count-house furniture, stock of materials, blacksmiths' tools, moulds, screw stocks, taps and plates, new iron and steel, quantity of new plank, powerful screw and box, miners' tools, &c.

THURSDAY, the 4th MAY, Large quantity of TIMBER, the PLANT at WHEAL BROTHERS, UTENSILS and FITTINGS of ASSAY OFFICE, some articles of furniture, and a great variety of useful miscellaneous effects—the whole of which will be sold without reserve.

The mine is situated about two miles from Callington, seven from Tavistock, and three from the quays on the Tamar, where every facility is attainable for shipping heavy weights. The mail road adjoins the mine.

G. C. respectfully calls the attention of mine agents to this very valuable machinery, which has been in use only about two years, and is, for all mine purposes, as good as new.

Catalogues are now ready for delivery, and may be obtained at the West Briton Office, Truro; Bedford Hotel, and Queen's Head, Tavistock; Webb's Hotel, and the Fountain Inn, Liskeard; at the company's offices, 44, Finsbury-square, London; or of Mr. J. Peter, the purser, Callington, or of the auctioneer, at his offices, 20, George-street, Plymouth.

Refreshments at Eleven.—The sale will commence each day at noon precisely.

Dated, 20, George-street, Plymouth, April 12, 1848.

EXTENSIVE IRON-WORKS FOR SALE.—TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Glasgow, upon Wednesday, the 24th day of May next, at Two o'clock afternoon (if not previously disposed of by private bargain), the BLAIR IRON-WORKS, belonging to the Ayrshire Iron Company, situated in the parish of Dalry, and county of Ayr.

These works, which have been recently erected at an immense cost, consist of two blowing-engines, five blast-furnaces, workmen's houses, steam-engines for working the mine-shafts, together with utensils at the pits, furnaces, &c., all in working order, and capable of producing upwards of 35,000 tons of pig-iron per annum.

One of the blowing engines, high-pressure, mounted at 90-horse power, was erected in 1841; the other, a condensing engine, was erected in 1847, and is estimated at 200-horse power, the latter being capable of blowing five furnaces, and both fitted up in the most substantial manner, and at present in the best working condition.

The furnaces have been erected with the greatest care, and are fitted with air-heating apparatus of the most approved construction. The make of each furnace has generally averaged upwards of 150 tons of iron per week, and some of them have produced 180.

There are, besides the manager's house and store buildings, 187 workmen's houses, in a healthy state, attached to the furnaces and pits, and there are 20 partly built, which could be finished at small additional outlay. There are also a new foundry, bright shop, fire-brick work, smithy, &c.

The MINERAL FIELDS, consist of COAL, IRONSTONE, LIMESTONE, and FIRE-CLAY, held in lease, by the company, at moderate fixed rents and royalties, all situated within easy distances of the furnaces, and for the most part have the advantage of railway communication.

The COAL-FIELDS consist of several hundred acres, of which only a small portion has been worked. Several pits, fitted with good engines and machinery, are sunk to the coal, and partly in operation.

The IRONSTONE consists of the well-known black-band, yielding about 3000 tons of calcined stone per acre; and it has been estimated that there are 300 acres or thereby still to work—besides which, there is a large extent of clay-band ironstone, hitherto little wrought, but capable of yielding a large output. There are 15 pits, with excellent steam-engines—some of them in present operation, and others ready to resume working.

The LIMESTONE QUARRY is worked by open cast, and is connected with the works by railway.

The FIRECLAY is abundant, of excellent quality, and cheaply produced. The Glasgow, Paisley, Kilmarnock, and Ayr Railway (extending to Carlisle), passes close to, and has connection with, the furnaces—by means of which, and others in connection with it, the produce can be conveyed to the city and port of Glasgow (22 miles off), and to the seaports on the Ayrshire coast, each within a few miles of the works.

There is a large stock of calcined ironstone, coal, and limestone on the ground, so that the works may be put into immediate operation, and, under judicious management, the manufacture of pig-iron may be carried on to the greatest advantage. The concern will be found to be well worth the attention of persons having the requisite capital, and affords an opportunity of entering into the business seldom to be met with.

MALLEABLE IRON-WORKS.—Considerable progress has been made in the erection of extensive malleable works, which, when completed, will be capable of turning out 300 tons of bar-iron weekly. The most of the necessary machinery has been prepared by the contractors; and a portion of the work could be brought into operation in a few months to produce the half of the above estimate. This work is nearly adjoining the Pig Iron-Works, and connected by railway, and will be sold either together therewith or separately.

Plans of the property and mineral workings lie for inspection at the Ayrshire Iron Co.'s office, 113, St. Vincent-street, Glasgow, where, on application to Mr. Brown, every necessary information will be afforded, and orders given for inspection of the works.

N.B.—The purchaser of these works has an opportunity of, at the same time, acquiring the Mansion-house, Lands, and Minerals of Pitcon, immediately adjoining (the latter being part of those above referred to, as held in lease by the company), which are advertised to be sold at the same time and place.

VALUABLE ESTATE AND MINERAL FIELD IN Ayrshire FOR SALE.—TO BE SOLD, BY PUBLIC ROUP, within the Royal Exchange Sale Rooms, Queen-street, Glasgow, upon Wednesday, the 24th day of May next, at Two o'clock afternoon, unless previously disposed of by private bargain.

All and WHOLE the LANDS and ESTATE of PITCON, extending to about 216 acres, imperial measure, and comprehending the following lands:—viz., the Three Mark Land, of old extent, of NETHERMANS of PITCON; the Two Mark Land, of old extent, of OVERMANS of PITCON; the Two and One-Half Mark Land, of old extent, of LINTSEEDRIDGE; 6 acres 10 fells, or thereby, of the farm and lands of MIDDLETON, situated on the east side of the high road leading from Dalry to Kilmarnock; and one rood and 0 fells, or thereby, of the lands of KERSELAND, situated on the north or north-west side of the water of Garnock, with the tithes, parsonage, and vicarage of said lands; together with the MANSION HOUSE of PITCON, and OFFICES and GARDENS thereto belonging; and the whole MINERALS and METALS in the several lands above-mentioned; and whole privileges and pertinents belonging to the same; but, excepting these eight acres or thereby, Scotch measure, now belonging to the Glangarnock Iron Company, of their presently working seam of ironstone in the said lands; and also excepting the Pitcon Railway and branches, in so far as the same are within, and pass through, the said lands.

The MANSION HOUSE, which is pleasantly situated, and commands a most extensive view, is in good order and repair, and has attached to it a set of suitable and commodious offices, with walled garden, shrubbery, and pleasure-ground; and the whole are enclosed from the other portions of the estate by a high and substantially built wall.

The LANDS (exclusive of those attached to the mansion house), let under lease, extend to about 140 acres Scotch, or thereby, and are at present held by a respectable tenant at a surface rent of £490 sterling per annum. The farm standing upon the lands is most substantially built, and in good order and repair.

The MINERALS, which have been ascertained to comprise the most valuable descriptions of ironstone, extend to about 140 acres still unwrought, and are held by the Ayrshire Iron Company upon a lease, at a present fixed rent of £1000 sterling per annum; or, in the option of the landlord, at a certain lordship, which has hitherto greatly exceeded the fixed rent, and yielded a very large yearly return. Upon a moderate calculation, the black-band yields about 3000 tons calcined ironstone to the imperial acre. There are, besides, in the course of being wrought on the lands, several seams of coal and other minerals.

The Estate of Pitcon is situated near to the village of Dalry, at which there is a station upon the line of the Glasgow, Paisley, and Ayr Railway, and in the immediate neighbourhood of the Ayrshire Iron Company's Works, with which it is connected by railway communication.

This property will, in consequence, form a most desirable and profitable investment to the purchaser of the Ayrshire Iron Company's Works (the Blair Iron-Works), which, along with the benefit of the mineral lease of Pitcon, are advertised to be sold by public roup, at the same time and place with this estate.

The public and parish burdens payable from the estate are small; and whether regarded as in connection with the Ayrshire Iron Company's Works, or separately, there is seldom so desirable and eligible an investment as the present offered to competition.

For further particulars, application may be made to M'Colland and M'Kenzie, accountants, 128, Ingram-street, Glasgow; Robert M'Gowan, accountant, 17, Gordon-street, there; Knox and Findley, writers, 29, St. Vincent-place, there; James M'Gosh, writer in Dalry; or, to Douglas and Ranken, writers, 31, St. George's-place, Glasgow, in whose hands the articles of roup and title deeds, and a plan of the estate and mineral workings, may be seen.

Mr. M'Gosh will give directions for the lands being pointed out, and the mansion house, offices, and garden, being shown to inquirers.

BOGLE and Co., Auctioneers, Glasgow, April 22, 1848.

VALUABLE SEA-SALE COLLIERIES TO BE LET.

TO BE LET, and entered upon on the 1st of July next, the valuable current-working COLLIERIES of EVENWOOD and NORWOOD, in the county of Durham.

These collieries are situated upon the line of the Stockton and Darlington Railway, by which the coals are conveyed to the shipping ports of Stockton and Middlesbrough; and also, by means of this, and the York and Newcastle, and Leeds and Thirsk Railways, the coals have access to the important land-sale trade of Northallerton, Thirsk, Ripon, York, the lead-mining districts, and other towns in Yorkshire, and for shipment on the Ouse; and, by means of the proposed Northern Counties Union Railway, with the important land-sale trade of the western parts of Yorkshire and Westmoreland.

The royalties are very extensive. Two seams of coal are in working—one upwards of 6 feet, and the other of 3 feet. The pits are at a moderate depth from the surface, and the coal is worked at an exceedingly cheap rate, and is much prized as a household coal, both for export and land-sale.

The entering tenant has the option of taking what stock he may require, at a valuation; and the amount of capital required to enter upon the collieries will be of very small amount.

For particulars apply to Thomas Wheldon, Esq., Barnard Castle; or to Nicholas Wood, Esq., Newcastle-upon-Tyne.—Newcastle, March 3, 1848.

IMPORTANT TO CAPITALISTS.—TO BE SOLD, an excellent SLATE and SLAB QUARRY—VARIEGATED MARBLE and HONE QUARRY—COPPER and LEAD MINES—situated on the same property, within a short distance of the shipping harbour of Llanwndo, Carnarvonshire.

A GENERAL STATEMENT.

The above works are situated on a farm called Croes-y-ruchaf, in the parish of Llanfrothen, in the county of Merioneth, about seven miles distant from the shipping harbour of Portmadoc, and about two and a half from the railway of the Festiniog Slate Quarries to the port. They are near the celebrated quarries of Festiniog, which are well known throughout Europe; and it hath been ascertained, by competent judges, that this slate vein is a continuation of the very productive vein worked by the Welsh Slate Company at that place, of which Lord Palmerston and other noblemen are partners, which send about 500 tons per week of fine slate to the market. The vein is about 70 yards wide, and very advantageous for working, being situated on the brow of a hill, and the rubbish thrown down, where there is a depository of 300 or 350 yards deep for it, without causing any trespass. The quality is good, splits well, and is of a beautiful blue colour.

Slates of the largest size are made from it, and slabs also, of large dimensions. Thousands of fine slates, worked to sizes, and beautiful slabs, are now ready on the bank.

The proprietor has ascertained most positively that no other slate quarries in Wales can produce such beautiful specimens from so near the surface, and where so little money has been expended.

The MARBLE and HONE again the slate quarry, and some splendid specimens of variegated marble and hone have been already made from it.

The COPPER and LEAD MINES are about a quarter of a mile from the slate quarry, and the metals are of superior quality, and likely to become very productive.

There is the greatest facility for carrying on operations at all the works, which may be done with little expense, as few or no machinery will be required. A sawing and planing engine may be worked by water, just below the quarry.

Satisfactory reasons will be given why it is sold.

For further particulars, and to treat for the same, apply (postage paid) to Mr. Richard Jones, printer and auctioneer, Dolgelly, North Wales, where specimens of the slates, marble, bone, copper, and lead, may be seen.

TO BE SOLD, OR LET, a valuable COAL MINE, in the township of GREAT HARWOOD, in the county of Lancaster. The mine has been recently proved, and found to be 3 feet 2 inches in thickness, and of excellent quality; it is commonly called, or known, by the name of the UPPER MOUNTAIN MINE, and extends over about 1000 statute acres, which will be divided into suitable lots.

The property is situated between the towns of Blackburn and Clitheroe, and is intersected by a branch of the East Lancashire Railway.

A section of the borings may be seen, by applying to Mr. Bosile, Rufford-hall, Ormskirk; or to Mr. Whitte, coal viewer, Charrook Richard, Chorley—to either of whom proposals may be sent.

MINERAL FIELD IN MID-LOTHIAN TO LET.—The COAL, LIMESTONE, and IRONSTONE in the LANDS of BRUNSTAIN and DUDINGTON are hereby OFFERED TO BE LET, and entered on at Whitestown first.

The coals consist chiefly of what are termed the Edge Seams of Mid-Lothian, which are numerous, and of various thickness and quality—some of them containing Gas or Parrot Coal. There is also reason to expect, at Duddington, BLACKBAND IRONSTONE, such as has been found at Gilmerton, Dryden, and Greenlaw, in the same range of coals.

LIMESTONE has been worked on the estate.

The near vicinity of this coal-field to the city of Edinburgh and the town of Portobello, and the direct access, by railway, to the ports of Leith and Fife, render it peculiarly advantageous for a colliery. An engine-pit is already sunk to a considerable depth at Magdalen, and an inclined plane line, in one of the edge seams of coal, has been extended at Joppa, in which mine coal was prepared and ready to work, but both operations were suddenly suspended, owing to the death of the late tenant; the pit and mine are thus at present filled with water, but the machinery is still on the property, and may be had in purchase, or in lease, by a tenant.

For particulars apply to Messrs. Bald and Geddes, mining engineers, Edinburgh—with whom are the plans and sections of the coal-field.—April 22, 1848.

SILVER AND LEAD MINES, in the CANTON DU VALAIS, SWITZERLAND.—From two levels, in a mountain, full 1000 tons of silver and lead ores, estimated at £16 per ton, are now at surface. The vein of ore whence they were drawn, is ascertained to be 47 feet in width, and extends through the height and breadth of a high mountain. The mines are in full operation, producing ores equally rich as those extracted. One-fifth part of these mines have been purchased by parties, who will spare a few of the shares.

Application for further information, terms, &c., may be made at the Royal British and Foreign Mining Offices, 140, Strand, London, up to, and inclusive of, Saturday, the 29th April inst., and the allotment will be made on the 1st May.

CARNARTON MINE.—TO BE SOLD, in one or more lots, ONE THOUSAND SHARES in the CARNARTON COPPER and TIN MINES, whereon a sum of £2 per share has been paid. The mine is held under a lease, granted in January, 1845, by Sir R. R. Vyvyan, Bart., of part of the tenement of Carnarthen, in the parish of Illogan, in the county of Cornwall, for a term of 21 years. A company, on the Cost-look System, has been formed for working this set, and the gentlemen whose shares are now for sale are interested therein to the extent of one-sixth.

For further particulars, apply to Messrs. Tilson, Squance, Clarke, and Morice, solicitors, 29, Coleman-street, London.

TREWALLACK MINE.—TO BE SOLD, BY PRIVATE CONTRACT, an excellent ENGINE, for pumping or drawing, about 20-inch cylinder, in good condition, with a boiler of 10 tons.—For particulars, application to be made to Capt. John Lean, Camborne; or to Mr. H. Elbery, Truro.

N.B.—There are also several tons of pit-work—viz., 18 pumps, 13-inch; 2 working-barrels, 13-inch, nearly new, 2 doorpieces, and 2 windbores.

FOR SALE, BY PRIVATE CONTRACT.—A single-acting PUMPING-ENGINE—cylinder 30-inch diameter, 9-foot stroke, equal beam, with 7-ton boiler, cylinders, spring beam, and first set of rod-shafts attached, being the engine of Wheal St. Cleer.—For particulars, apply to Capt. Osborne, Liskeard; Mr. West, engineer, St. Biazey; or Mr. Rendle, the purser, 13, Octagon, Plymouth.

CORNWALL NEW MINING COMPANY.

Capital £100,000, divided into 20,000 shares, of £5 each.

(With power to be increased.)

To be incorporated, in pursuance of the statute of 7 and 8 Vic., cap. 110—by which the responsibility of each shareholder is limited.

Deposits 20s. per share.

Not to be Paid until the Company is completely Registered and Incorporated.

The CORNWALL NEW MINING COMPANY is ESTABLISHED TO WORK A SERIES of TIN and COPPER MINES, chiefly in the district of ST. IVES, which has hitherto afforded a larger profit on its return of ore than any other part of the county.

In pursuance of this plan, five of this description have been already selected—viz., Georgia Tin Mines, Trewortha Tin and Copper Mine, Bray Tin and Copper Mine, Trevanno Tin and Copper Mine, and Wheal Squire Tin and Copper Mine, with whose owners the committee have been enabled to make such advantageous arrangements, as to enable them to work one or more with even a small portion of the proposed capital.

These mines are not only known to contain mineral ores of immense value, but the workings are already so far advanced, that the lodes ascertained and reached must produce early and large returns; and, in addition to the above, there are others which the committee have secured on sufficient public support being obtained.

With a view of inducing the public generally to avail themselves of such a beneficial employment of their capital, the committee have made the shares £5, and of which only £2 10s. is to be paid within 18 months—limiting further calls to the control of the subscribers themselves, and to be made only when a dividend shall have been declared.

Applications for shares to be made, in the usual form, at the offices of the company, 17, Essex-street, Strand; and to the following brokers and agents, of whom detailed prospectuses may be obtained:—Messrs. G. and T. Irvine, Liverpool; Messrs. Cardwell and Sons, Manchester; Messrs. J. Scott and Son, Birmingham; Messrs. Rhodes and Hayes, Leeds; Messrs. Brady and Co., Hull; Mr. Joseph Clarke, jun., Southampton; Mr. Chas. Clay, Halifax; Messrs. William and Charles Skardon, Plymouth; Messrs. W. Moore and Co., Huddersfield; Mr. Thomas Dewhurst, Bradford; Mr. Henry Vatcher, Exeter; Mr. Ralph Dodsworth, York; Mr. W. F. Collier, Brixham; F. Crowe, Great Yarmouth; Mr. Charles Vincent, Dartmouth; Messrs. Edward Morgan and Co., Norwich; Messrs. Robinson Cruse and Son, King's Lynn.—Prospectuses can also be had at the office of the Mining Journal, 25, Fleet-street, London.

Office, 17, Essex-street, Strand.

WANTED, by a CONTRACTOR, a STATIONARY ENGINE, from 40 to 50-horse power, with all the PUMPING APPARATUS belonging to the same, for a lift of 25 feet, and in good and substantial state of repair; the above to be delivered at Plymouth Harbour. A high-pressure engine, of about 30-horse power, would answer the purpose, and would be preferred.

Letters, stating price, and where the above can be inspected, to be addressed to "A. 16," Railway Record Office, 163, Fleet-street, London.

TO SMELTERS AND OTHERS.—The ADVERTISER, who has had many years' experience in Smelting of Copper, Lead, and Silver-Lead Ores, wishes to obtain a SITUATION; he is thoroughly qualified to refine those metals, and is acquainted with all the various modes by coal, wood, or charcoal—his experience in the most recently-discovered modes would be found advantageous in operating on ores of very low produce, which have not been found to smelt with profit; or in foreign countries where fuel is scarce; he is an assayer of the above metals, and would be willing to take a proportion of the profits as remuneration. The most satisfactory references can be given, and security, if required.—No objection to go abroad.

Address "X. Y.," at the office of the Mining Journal, 26, Fleet-street, London.

WANTED, for WHEAL PENHALE MINE, near WADE-BRIDGE, SECOND-HAND—ONE 6-inch PLUNGER POLE and BOTTOM; SIX FATHOMS 6-inch PUMPS; TEN FATHOMS 8-inch ditto; ONE 7-inch WORKING BARREL; ONE 7-inch CLACKPIECE; ONE PAIR 4-inch ROD CAPS and CROSS PLATES; several PAIRS of 4-inch PLATES and PINS; THIRTY FATHOMS 6-inch good CHAIN.—Letters, with place and prices, to Mr. J. Gray, Wheal Penhale Mine, who is open to PURCHASE a SECOND-HAND TUBE BOILER, from 3 to 4 tons.

Dated April 25, 1848.

BLAENGWAWR STEAM COAL, CARDIFF.—placed on the List of Coals supplied, by Contract, to the Government.—ORDERS for the BLAENGWAWR STEAM COAL RECEIVED by Mr. W. F. STANTON, No. 9, LOVE-LANE, EASTCHEAF; or by Mr. George Sully, agent, 1, Bute-street, Cardiff, Glamorgan, South Wales.

MINING OFFICES.—ESTABLISHED FIVE YEARS.—THOMAS F. THOMAS begs to inform his friends and the public, that he has REMOVED from No. 13, Threadneedle-street, to No. 3, GEORGE-YARD, LOMBARD-STREET, LONDON (late Messrs. Phillips and Tiplady's).

N.B.—Dealer in English and Foreign Funds, Mining, Railway, Gas, and other shares.

WILLIAM W. TAYLOR & CO., MINERAL SURVEYORS, MINING SHAREBROKERS, &c., No. 2, ROYAL EXCHANGE-BUILDINGS, LONDON.

MR. R. TREDINNICK, THREE KING'S COURT, LOMBARD-STREET, LONDON.

Continues to DEAL in every description of MINING, RAILWAY, BANKING, INSURANCE, CANAL, and OTHER SHARES.—Statistical information afforded gratuitously upon personal application.—MONEY ADVANCED upon the above securities.

JAMES LANE, MINING SHARE DEALER, 75, OLD BROAD-STREET, LONDON.

WILSON & FRASER, 2, WELLINGTON-BUILDINGS, LIVERPOOL, and 13, EXCHANGE-PLACE, GLASGOW, have always ON SALE PIG-IRON, BAR-IRON, RAILWAY CHAINS, and RAILWAY BARS.

BRITISH MINING OFFICES.—NOTICE.—The BUSINESS of these OFFICES will henceforth BE CONDUCTED at No. 25, FLEET-STREET, LONDON, and No. 4, STAMP-OFFICE BUILDINGS, MANCHESTER, to either of which offices communications are requested to be addressed. The correspondence and reports, with the accounts, of the respective companies may be inspected at all times, on application.

British Mining Offices, Feb. 17, 1848.

MONEY.—MESSRS. KILICK & CO. (late WINSTANLEY, KILICK, & Co.), SHAREBROKERS, inform their friends and the public, they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms; they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged.

6, Bank Chambers, opposite the Bank of England.

MINING SHARES.—A Gentleman wishes TO SELL about ONE-TENTH of a well-known TIN and COPPER MINE, in DEVON. It is in active work, and will bear the most rigid scrutiny—offering a very large interest on the investment.—Apply, or address (pre-paid), to "A.," 11, Bucklersbury, Cheap-side.

ANGLO-MEXICAN MINT OFFICE, 5, Broad-street-build-ings, April 21, 1848.—Notice is hereby given, that the ANNUAL GENERAL MEETING of shareholders in this company will be HELD at the office, as above, on Tuesday, the 2d May next, when one director will be elected, in the place of J. F. Powles Esq., who goes out by rotation, but is eligible for re-election, and will be proposed accordingly.—The chair to be taken at One o'clock precisely.

G. B. LONSDALE, Secretary.

BANWEN IRON COMPANY.—Established 1846.—for WORKING the IRON MINES on the BANWEN ESTATE, in the neighbourhood of SWANSEA, Glamorganshire. The mines are now in work, and further CAPITAL being REQUIRED for erecting additional FURNACES, a portion of the reserved shares of £6 each may now be had, on application at the offices of the company. A deposit of £2 per share to be paid down, and the remainder by two instalments, at intervals of two months. This company offers peculiar advantages, and the profits are estimated to return a dividend of 25 per cent.

Offices, 23, Threadneedle-street.

CAMBORNE CONSOLS MINING COMPANY. TEMPORARY OFFICES.—No. 14, FISH-STREET-HILL, London, April 23, 1848.

CORNISH MINING COMPANY.—OFFICES, No. 13, MONUMENT CHAMBERS, LONDON.

TRELEIGH CONSOLIDATED MINING COMPANY.—A DIVIDEND of FIVE SHILLINGS per share has been this day declared, PAYABLE on Monday, the 10th of April inst., and on every succeeding Monday, between the hours of Eleven and Three o'clock.—The coupons, with a list thereof, according to a form, which may be obtained at the office, must be left, for examination, two clear days previous to payment.

57, Old Broad-street, April 3, 1848.

WEST WHEAL JEWEL MINING ASSOCIATION.—Notice is hereby given, that the ANNUAL GENERAL MEETING will be HELD at the company's offices, as under, on Monday, the 8th of May next, at Twelve for One o'clock precisely.

57, Old Broad-street, April 13, 1848.

WHEAL CURTIS COPPER MINING COMPANY.—Notice is hereby given, that the board of directors have this day made a CALL of TEN SHILLINGS per share on the shares in this company, PAYABLE on or before the 10th day of May next; and the proprietors of shares are requested to pay the said call to the secretary, at these offices, between the hours of Ten and Four o'clock.

Interest, after the rate of 5 per cent. per annum, will be allowed on sums paid in advance; and interest, after the same rate, will be charged on all sums not paid by the 4th above appointed.

By order, GEO. A. JACOB, Secretary.

Basinghall Chambers, Basinghall-street, London, April 12, 1848.

ANTIMONY AND SILVER-LEAD MINING AND SMELTING COMPANY.

1000 shares, of £5 each.

NOW AT WORK ON THE COST-BOOK PRINCIPLE.

Applications for shares to be made to Mr. R. Tripp, Fore-street, Exeter; Messrs. W. King and Co., Newcastle-upon-Tyne; Mr. R. Bartlett, 66, Lombard-street, London.

ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all FRODUCTS, metallurgical and manufacturing, at his LABORATORY,

23, HANLEY-ROAD, KENTISH TOWN, LONDON,

to which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

ADCOCK'S PATENT SPRAY PUMP.—This important INVENTION having been PERFECTED, and brought into SUCCESSFUL PRACTICAL OPERATION, the PATENTEE is ready to RECEIVE, and to execute, ORDERS.—Apply to Henry Adcock, C.E., at his offices, No. 3, Moorgate-street, London, where pamphlets, descriptive of the invention, may be had; at the office of the Mining Journal, 26, Fleet-street; and through any respectable bookseller—price 6d.

STEAM-ENGINES.—From 5 to 20-horse power ENGINES ALWAYS IN STOCK.

Apply to Mr. CAPPER, Engine-Maker and Founder, BIRMINGHAM.

Price—£13 to £16; with boiler, £22 per horse.

THE CROWN DIAMONDS.—The following is the estimated value of diamonds in the crown worn by the queen on state occasions:—

Twenty diamonds round the circle, 1500, each.....	£30,000
Two large centre diamonds, 5000, each.....	4,000
Fifty-four smaller diamonds, placed at the angle of the former.....	100
Four crosses, each composed of twenty-five diamonds.....	12,000
Four large diamonds on the top of the crosses.....	40,000
Twelve diamonds, contained in fleur-de-lis.....	10,000
Eighteen smaller diamonds, contained in the same.....	2,000
Pearls, diamonds, &c., upon the arches and crosses.....	10,000
Also one hundred and forty-one small diamonds.....	600
Twenty-six diamonds in the upper cross.....	3,000
Two circles of pearls about the rim.....	300

Cost of the stones in the crown, exclusive of the metal.....£11,900

CARDIFF STEAM-COAL TRADE.—One of the French gas-light companies have ordered of a firm in the Taff-Vale 60,000 tons of white-ash steam-coal. This order is now in the course of shipment. *—Swansea Herald.*

The consumption of coal by the Great Western Railway Company amounts to 80,000 tons annually.

ANOTHER PERSON CURED OF DROPSY BY HOLLOWAY'S PILLS.—Mr. Dunlop, an extensive farmer, residing at the Elms, near Boston, had been for years in a bad state of health. The disease produced a swelling in his feet and ankles, which gradually ascended until the whole of his body was affected. Convinced that he was labouring under a confirmed case of dropsy, he consulted some of the most eminent of the faculty, and used their remedies, from which he derived no benefit, but became worse. In this state he determined to try Holloway's pills, and to the wonder of all, this superior medicine cured him in an incredibly short space of time. Sold by all druggists; and at Professor Holloway's establishment, 244, Strand, London.

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THE MINING JOURNAL.

Transactions of Scientific Bodies.

MEETING DURING THE ENNING WEEK.	
THIS DAY.....	Westminster Medical—17, Saville-row..... 8 P.M.
	Entomological—17, Old Bond-street..... 8 P.M.
	British Architects—16, Grosvenor-street..... 8 P.M.
	Chemical—Society of Arts, Adelphi..... 8 P.M.
MONDAY.....	Medical—Bolt-court, Fleet-street..... 8 P.M.
	Pathological—21, Regent-street, Waterloo-place..... 8 P.M.
	Horticultural—21, Regent-street..... 1 P.M.
TUESDAY.....	Linnean—Soho-square..... 8 P.M.
	Civil Engineers—25, Great George-street..... 8 P.M.
WEDNESDAY.....	Geological—Somerset-house..... 8 P.M.
	Society of Arts—Adelphi..... 8 P.M.
THURSDAY.....	Zoological—11, Hanover-square..... 3 P.M.
	Royal—Somerset-house..... 8 P.M.
	Antiquaries—Somerset-house..... 2 P.M.
	Royal Society of Literature—4, St. Martin's-place..... 3 P.M.
FRIDAY.....	Royal Institution—Albemarle-street..... 8 P.M.
	Botanical—20, Bedford-street, Covent-garden..... 8 P.M.

GEOLOGICAL SOCIETY.

APRIL 19.—Sir H. T. DE LA BECHE (President) in the chair.

Sir J. Lubbock was elected a Fellow.

"Palæontologic Notes, supplemental to the Works of Professor Agassiz," by Sir P. G. Egerton. Since the publication of the monograph of the fishes of the old red sandstone, little has been done in this branch of science: a fact the more to be regretted as it appears from Agassiz's works that there remained nearly 400 species neither figured nor described. The present paper is an attempt to supply a part of this deficiency, and has reference to the genus *Pterichthys*; the author having the advantage of the co-operation of Mr. Hugh Miller, the original discoverer of this strange group of fishes. The body of these fishes, flat below, but rising above into a roof-like ridge, was covered with a strong armour of bony plates, firmly wedged and fitted together like the various stones which compose the ribbed and pointed roof of a Gothic cathedral. This peculiar organization of the animal had special reference to the condition in which it was destined to exist, which seems to have been in the mud and sand at the bottom of the sea. In conclusion, the author points out that the genera *Pamphractus* and *Homothorax* of Agassiz are only different views of one species of *Pterichthys*.

"On the Transport of Erratic Boulders from a Lower to a Higher Level," by C. Darwin, Esq. Boulders, believed to have been derived from rocks now only found at a much lower level, have been discovered in many parts of this country and in America. They are mentioned by Prof. Phillips in Yorkshire, as carried from the bottom of the Vale of Eden over the top of Stainmore; the author himself saw them on Ben Erin, near Glen Roy; Mr. Maclean and Mr. Milne describe them on Arthur's Seat, near Edinburgh; Mr. Cumming in the Isle of Man; and Prof. Hitchcock in North America: so that no doubt of the fact can exist. Mr. Darwin shows that they cannot be derived from rocks once occurring at the same level and now destroyed. He also states, that the phenomenon cannot be explained from unequal elevation of the land, which would imply the most capricious and unequal movements on the surface of both continents, and often within very limited spaces—as in the Isle of Man, where the blocks within two miles of the parent rock are found nearly 800 ft. above it. He also remarks that they cannot have been picked up by ice-bergs from the bottom of deep water, and then thrown on the land. He, therefore, proposes the theory that they were moved by coast ice, which caught them up repeatedly and during the gradual depression of the land, which we know was then going on, transported them always to higher and higher levels, or rather kept them from sinking along with the sinking land. In consequence of being inclosed in ice the boulders resemble so much the timber—which was always kept floating on the surface, and is at length driven on the shore. These boulders, by their elevation from their original locality, thus mark the extent to which the land sank during the period of their transport, and also its subsequent elevation; and are thus like buoys of stone by which Nature marks the former movements of the earth's crust.

A paper on "Scratched Boulders," by J. Smith, Esq., of Jo da Hill, was read. Mr. Smith described some boulders on the shores of the Gare Loch, in Dumfriesshire, the upper surface of which is marked by striae in the direction of the valley, which he thinks, as stated by Mr. C. Maclean, must have been produced by the action of glaciers. The till, however, in which they are imbedded, must have had a different and prior origin.

DESICCATING PROCESS.

We have been favoured with a copy of a paper intended to form part of the last year's volume of *Transactions of the Society of Arts*, which gives the particulars of a new application of the well-known hot-blast system to manufacturing purposes, under the designation of the desiccating process, for which invention the first large gold medal of the society was unanimously awarded. This process is calculated to supersede almost if not every other mode of drying—owing to its amazingly rapid drying properties, as well as its simplicity, freedom from danger, its controllability, and, above all, its great economy.

To illustrate the extent of power in this over the ordinary methods of drying, we have only to imagine oneself walking along a road on a dull, close, foggy morning, without one breath of air stirring, every step taken being attended with a slip in a lateral direction, in consequence of the greasy or sloppy nature of the soil underneath; and compare this with the effect of a swift wind all at once sweeping along the surface—thus drying and hardening everything in its progress; in a word, the process is air in rapid motion, with the additional advantage of being perfectly controllable, both as regards temperature and current; this is adjustable in each case (in less time than it takes to read this article) from one temperature to another, or from one speed to another, varying as to temperature from that of the atmosphere to 500° or 600°; or the motion of the air from the lightness of a summer's breeze to that of the most furious hurricane, if so required; and the air thus propelled being at the same time entirely free from any vitiated properties.

It will be at once seen that the desiccating process, for all manufacturing purposes there is a command of drying power in this process which throws into the shade all methods where heat is merely thrown off by radiation, and from perhaps a highly heated and pernicious medium. The purposes to which this process has already been applied are very numerous; but, to how many more it may still be applied it would be difficult to say, seeing that there is no trade or purpose requiring drying power where the plan does not seem altogether applicable. Some of the most successful applications are the seasoning of all kinds of wood, which it accomplishes more effectually and securely in days, or weeks, than any mode of seasoning by the open air, and depriving the wood of the water and once of all the vegetable juices and moisture which render it rot and decay. It has also been applied with extraordinary success to calico printing, effecting an immense saving in fuel, besides many other far more important advantages. Also, the drying of paper, leather, starch, yarns, fabrics of all kinds—to the drying as well as to the purification of brewers' casks, feathers, hospital and prison clothing, blankets, and the like, it being found a most perfect disinfectant—and, although last, not least, to the roasting of coffee, which it accomplishes with a uniformity and results such to surpass all previous methods, on account of the means of control, and the saving of fuel, and the saving of space, and the saving of time, at the same time shutting in the heat at the proper moment for the purpose of retaining all the real aromatic properties: the latter application of this new process, we are informed, has occupied nearly four years in bringing to perfection, but which will now be brought before the public in the course of a very few days.

See Dr. Copland's *Medical Dictionary*, under the head *Pestilence*.

ACCIDENTS.

Victoria Iron-Works.—A fearful explosion of fire-damp occurred in the deep pit, at these works, on Monday last, by which five men were instantly hurried into eternity, and two others badly burnt and bruised, one of whom it is considered cannot survive. A Government commission is expected down to investigate into the cause of the accident.

Dudley.—W. Young was killed by a fall of coal at Messrs. Bagnall's, Groveland Colliery. A melancholy interest attaches to this unfortunate accident; the poor fellow, it appears, was in debt to his landlord, and was anxious to continue some temporary employment which he had obtained, to earn sufficient money to secure his goods from being seized; he, consequently, having obtained permission of Joseph Brown, the "doggy," commenced cutting coal; when, it is supposed, the unfortunate man imprudently removed a "tree," which had been placed to prop up the mine—as the "trees," after the fatal explosion, was found to have been placed 6 or 7 ft. from the spot where it stood when the deceased commenced cutting the coal.

West Bromwich.—T. Morgan incautiously took a lighted candle into the hollows of a coal pit, before the "butty" had examined it with his safety-lamp; an explosion consequently ensued, by which Morgan was dreadfully injured on various parts of his body, from the effects of which he died, after lingering some days in intense agony.

Awful Catastrophe at Chailion, France.—A heavy explosion, attended with loss of life, lately occurred at Chailion. It resembled the great earthquake of 1803. A great number of persons rushed into the street, and a cry of "To the iron foundries," was instantly raised. Shortly afterwards some workmen, blackened and burned from head to foot, came into the town, running through the streets, and uttering the most heart-rending shrieks. On arriving at the foundry every house contained one or more unhappy men more or less burned, and suffering excruciating tortures. In the very midst of the fire which was devouring the high furnaces, were women, children, and men calling for their husbands, sons, and brothers. The extent of the accident is not yet known. One of the masters, Mr. J. B. Jones, chemist, and another, Mr. J. W. Tanner, Esq., of St. Paul's, Walsley, his friend, and the cashier, were among the victims. Five persons have perished, and the number of those injured is not yet known. The cause of the accident, was that, having cast a very large mass of iron, they had dug a hole in the earth, into which some water flowed, and immediately the molten iron exploded with great noise.

The Recent Colliery Explosion at Neath.—The coroner's inquest connected with the recent lamentable explosion near Neath (the particulars of which appeared in the *Mining Journal* of the 1st and 8th inst.) has come to a close, and the result has been a verdict of "Accidental Death." The verdict is accompanied by any remarks on the part of the jury, tending either to confirm or neutralize impressions that were abroad—impressions which, we regret to say, were not likely to be removed by the tone of the evidence given in the earlier part of the investigation. We have no wish to impugn the verdict solemnly recorded, and, as we believe, most honestly found by the jury. We do not for one moment cast the shadow of an imputation of neglect or carelessness on the respectable proprietors of the Eaglesham Colliery; but we fearfully assert that there are sufficient data furnished by the evidence elicited at the inquest to render it almost imperative, not only for the satisfaction of the public, but on scientific grounds, that a further inquiry into this matter should be instituted for the prevention of such catastrophes for the future. If any argument were wanting to prove this, the fact that the opinion of the two men, Mr. Richardson and Mr. Bennett, are opposed in some respects to those of Mr. Struvé, is sufficient to show the necessity of further investigation into a matter on which competent and skilled authorities differ. It was, we presume, with a view to the probability of some further inquiry into the matter, that the jury abstained from expressing any opinion on an occasion which would naturally lead us to look for comment in some form or another. With similar views we now abstain from any comment on an analysis of the evidence which we have prepared. *—Swansea Herald.*

Fatal Accident on the Caledonian Railway.—On Monday morning, between eight and nine o'clock, while the train from Glasgow to Edinburgh was proceeding along the line, near Torphichen, in the neighbourhood of West Calder, a man was observed by the guard walking on the rails. The whistle was immediately blown to warn him of his danger, and the speed at which the train was proceeding was slackened. The man was on the other rail from that on which the train was running, but in the confusion of mind occasioned by observing the train close upon him, he crossed in the wrong direction, and came directly in front of the engine, by which he was knocked down. The whole of the carriages passed over his body, which was frightfully mangled. He was an Irish labourer in search of employment, and his name is supposed to be Matthew Fitzpatrick. *—Steepleman.*

NEWPORT AND PORTPOOL RAILWAY.—EXTENSION TO BLAENAVON.—It is the intention of this company to prosecute the construction of this line to Blaenavon as soon as possible, their agents having been over the ground last week, getting the consent of the owners of property on each side of the line.

It will be done at a very moderate cost, and it is well worth their consideration the extending of it to Abergavenny. They would have an immense traffic from the limestone rock at Pwll Ty, which is much wanted at all the works, and which, from its superior quality, would be worked to a great extent—sufficient of itself to pay the extension of the line, besides creating plenty of employment, a boon much to be desired at present, when so many of our industrious labourers are out of employment and starving.

WATERFORD AND LIMERICK RAILWAY.—The official inspection of this line, between Limerick and Tipperary, was concluded on Wednesday last, by Capt. Simmons. The solidity and construction of the bridges and embankments especially engaged his attention; and, having tested all the materials and apparatus, he certified his approval of the entire works, in a very satisfactory manner. The line is to be opened for passengers and traffic on Monday, May 1.

IMPORTANCE OF RAILWAYS TO, AND PRESENT EXPENSE OF TRAVELLING IN, INDIA.—The extent to which the population of India, and particularly that of the Valley of the Ganges, amounting to 49,920,000, will travel, in spite of the inconveniences and difficulties they have to encounter, and the slowness of their progress, will be understood when it is stated, that between Calcutta and Mirzapore there pass annually 60,000 passengers by native boats, 2000 in steamers, and by land in various conveyances, on camels, bullocks, horses, and ponies, about 508,000. The goods conveyed by land and river amounted in 1844-5 to 2,226,359 tons. Such is the movement of passengers and goods under existing circumstances. The different articles of merchandise are of great bulk and weight, and consist of sugar, indigo, cotton, oil, salt, rice, and ghee, grain and seeds of various kinds, salt-petre, drugs, shell-lac, spices, cotton goods, woollen goods, twist, beer, wine, hardware, and other European imports; opium, carpets, shawls, scarfs, coarse piece-goods, metals, wood, stone, lime and coal, and eventually by rail, ice. Dwarkanauth Tagore states, that 74,000 tons of coal are sent annually to Calcutta by the Damooda, and that the pits are capable of producing 185,160. Of salt alone, 22,222 tons are annually carried into Bahar, west of Rajmahal, and 12,962 between Burdwan and Calcutta. On the Baghurtee 83,943 tons down, and 95,373 up, pass the Jungpore toll in one year. The traffic by the Sunderbunds is in excess of the above, for the Baghurtee is only navigable during three months of the year, excepting by vessels drawing less than 18 inches of water. The goods traffic for one year on the Cawnpore and Allahabad road, was carried by 107,613 carts, and 172,577 camels, bullocks, &c., and 63,720 coolies (men). The sugar alone which passed the north-west frontier, on its way to Calcutta, amounted in the first six months of 1842 to 61,507 tons; in these provinces 18,900,000 of acres are under cultivation, of which 577,035 are sugar-cane. Four years since the exports and imports of Calcutta amounted to 16,570,000. These proofs of a large existing traffic have been taken at random from Government returns, and, if necessary, they might be greatly multiplied. With reference to the expense attending the present modes of travelling, that by dâk, the most expeditious way of riding across the country, is about a mile, not including the bonne main; but to be carried in a palanquin by relays of men at the rate of three miles an hour, does not realise the idea of an express train, and yet it is the express train of India, and really enables any one going to be married, or what is about the same thing, going to his death (another Sobraon in prospect), to get over 350 miles in seven days—that is, nights and days. On horseback, in a wheel carriage, or even by steam-boat, the traveller will be from four to five times as long performing the same journey. In a boat tracking up the stream, upon an average of 8 or 10 times. On horseback, assuming that the pony is purchased of a horse-dealer at the commencement of the journey, and sold to a horse-dealer at the end, the cost per mile is rather more than 1d., being one-third of 1d. more than a first-class fare in Belgium. The cost in a wheel carriage is rather more than 1d. per mile, more than a second-class fare in the same country. In the native boats the expense is rather more than 4d. per mile. By steam-boat, the fare down the Ganges is from 1s. 6d. to 2s. per mile. The passenger traffic, therefore, by railway, will be highly remunerative; and the journey to Benares from Calcutta, supposing the line were worked at so low a speed as 18 miles an hour, would occupy but 19 hours, instead of 24 days by steam-boat, or 35 to 45 in boats of the country. Surely it is not too much to suppose, that whatever a man's caste or religion may be, he would—attention being paid to his prejudices—contrive to reconcile himself to such a mode of conveyance.

WEST CORNWALL RAILWAY.—Our readers are already aware that the question in dispute between Mr. Mowatt and the company has been a matter of appeal to legal authority—it was decided in favour of the defendant, on Wednesday last, by the Vice-Chancellor of England; but, as the facts of the case may prove interesting, we will give a short detail of them. A bill had been filed by the railway company against Mr. Mowatt, for the specific performance of an agreement entered into by him for the purchase of 4935 shares in the railway, and to restrain the defendant from proceeding against Messrs. Denison, the bankers, for the recovery of certain railway shares, deposited by the defendant as security for the purchase money. It appeared that when the railway was projected, it was agreed that there should be 25,000 shares issued at 20l. per share: 4935 of these shares were unappropriated, and the defendant entered into an agreement with the directors to purchase the unappropriated shares at 15l. per share, and for the purpose of effecting this purchase the directors agreed to deliver up to the defendant debentures amounting to 24,000l., so as to make up the difference between the 20l. value of the shares, and the 15l. so agreed to be given by the defendant. It was further arranged, that the defendant should deposit certain other railway shares with the Messrs. Denison, as security for the purchase money. The defendant, who had acted as chairman of the railway for some time, had now declined to fulfil his agreement, and this bill was consequently filed against him. A demurrer was put in for want of equity on the ground that the company had no power to sell the shares at a price less than 20l., the amount fixed by Act of Parliament, and that the directors could not legally grant debentures according to the terms of the agreement. In support of the bill, it was contended that the shares being at a discount it was greatly for the benefit of the shareholders in the company that this agreement should be enforced; and, although the directors might not now have the power of granting debentures, this would not render the bill demurrable, as they were only to be given so soon as they should be able legally to do so. The VICE-CHANCELLOR said, it did not appear that the directors had any power to enter into such an agreement as this; they might as well contract to sell all the rights and royalties of the Queen, when they should become entitled to them. Under these circumstances, he should allow the demurrer.

DUTCH CLINKERS.—A vessel, arrived off the Tower from Rotterdam, has brought the extraordinary large quantity of 89,000 of this particular description of article.

THE NEW STEAM-SHIP "UNITED STATES."—On Saturday afternoon the new steam-ship, *United States*, under the command of Captain Hackstaff, arrived at Liverpool, from New York, after a successful trip across the Atlantic of 18 days 15 hours. The interest of the spectators was particularly excited by the fact that she is the first American steamer propelled by paddle-wheels that has entered the Mersey. As she steamed steadily up the river, which was almost calm, her large form was seen to advantage. She displayed at the head of the foremost British ensign, and on the peak of the mizen the American ensign. She is a fine-looking vessel, the hull being being formed more after the style of the New York packet-ships than the model adopted in the construction of British steamers. She is built very full both fore and aft, which gives the vessel great length of flooring and increased buoyancy. She has a neat bill-head, richly gilted, and a round stern, which is arched with elegantly-carved work, also gilted, on a white ground. She has three masts, barque rigged. She was built by Mr. W. H. Webb, of New York, of live oak, locust, and cedar, from a long cherished and well-matured plan of Capt. Marshall, one of the principal owners: has 256 ft. length of spar deck, all of which is open for promenade, 50 ft. beam, and 30 ft. depth. She has two powerful engines, manufactured by Messrs. Sear and Co., of that city, with 80-in. cylinders, and 9-in. stroke. They are the largest engines made in the United States, and are supplied with steam from four boilers. Besides stowage for 860 tons of coal, there is room for 800 to 1000 tons of freight. She has ample accommodation for 160 cabin passengers. The saloon is 89 ft. long, and fitted up with two rows of dining-tables. *—Liverpool Advertiser.*

LAUNCH OF A NEW IRON STEAMER IN CORNWALL.—A splendid new iron steamer, built by Messrs. Harvey and Co., has been launched from their yard at Hayle Foundry. The vessel is intended for a tow-boat on the River Rhine; her length at the water-line is 179 ft.; extreme length, 205 ft.; breadth, 29 ft.; extreme breadth, without the paddle-boxes, 47 ft. 3 in.; depth in the hold, 11 ft.; her present weight is calculated about 150 tons, and draws only 15 in. of water. Her engines are 250-horse power, and when on board, together with the whole machinery and stores, will draw only 44 ft. of water; she is calculated to tow 1000 tons of goods an hour against a stream that runs 44 knots an hour. She was laid down in October last, and is expected to be completed shortly—thus showing what can be done at Hayle in case of emergency, as others of large dimensions can now be executed in less time if required. *—Cornwall Gazette.*

EXPLOSION OF A LOCOMOTIVE BOILER AT NORMANTON.—On Tuesday morning, about 11 o'clock, as the mail train from York arrived at the Normanton station, and the engine had just been detached, an explosion took place in the fire-box attached to the boiler. Fortunately, no loss of life has been occasioned by the accident. The principal injury sustained is that received by the engine-driver, who was severely scalded, and who now lies in the Leeds Infirmary, whether he was conveyed immediately after the accident. Four other persons, amongst whom we understand were a railway clerk and his assistant, were more or less injured. The mail train from Normanton to Manchester, which was standing at a short distance on another line, just on the point of starting, was bespattered with dirt and ashes by the explosion, but none of the passengers, as far as we can learn, have received any injury. *—Manchester Guardian.*

IMPROVEMENTS IN STONE AND MARBLE SAWING.

In calling public attention, in the *Mining Journal* of the 15th instant, to Hutchison's Patent Indurated Building Materials, we cursorily noticed that the same gentleman had a patented machine for stone sawing by hand, by which the labour is much abridged—the work rendered strictly true, and the economy, as compared with steam sawing, very considerable. In cutting the more valuable marbles by steam machinery, there is a very serious objection, in addition to the increased expense over hand sawing—viz.: from the concussion of the moving parts of an engine of large power; a jar, or shake, is communicated to the block; and wherever there is the slightest tendency to a flaw, the vibration is almost certain to develop it; and, indeed, generally, the aggregated particles become so shaken as to effect considerable injury. Mr. Hutchison's object was to construct a saw on such plan, that the operator should have over it the most complete command; and to prevent one-half his power being employed in merely keeping the saw in a truly perpendicular position.

To effect this, a pair of grooved rails are so arranged in a frame, as to be easily regulated by screws in a lateral direction—the frame itself being capable of adjustment vertically, according to the height the saw-blade is required; the saw frame works backwards and forwards in these grooved rails, being nicely balanced by a bob-weight passing over a pulley; and so smoothly does it work, that a boy, 10 years of age, can work this saw with far greater effect than the most powerful and experienced workman can accomplish the same effects with the old saw. Any experienced labourer can work it—the cuts may be set out with the greatest nicety to the 32d part of an inch; and two, three, or more, blades may be used at once—thus producing as many slabs at one cutting as there are blades; the application of sand and water is carefully regulated, and the work is turned out, as to finish, equal to any machine sawing, without the danger of producing flaws, as mentioned above. The whole is covered by a portable shed, to keep the machinery and workman from the weather. Not only to masons of moderate extent of business, but to the largest tradesmen and contractors—particularly with respect to the finer marbles—this saw will, we believe, prove invaluable—enabling them, at any time, to set out a slab, according to the emergency of any particular stock, time, or order, and taking it off ready for the polishing table, or fixing in its place, in less time than it would take to send the block to the steam machinery. The patentee is about constructing several for his own works, for marbles, and indurated building materials, in London, Tonbridge Wells, and Caen, in Normandy; and they will, we have no doubt, prove well worthy of inspection by all parties connected with paving, building, architecture, &c. Mr. Hutchison is prepared to grant licenses for their use, on reasonable terms.

PATENT TIDAL WHEEL COMPANY.

We have been favoured during the week with an inspection of the wheel belonging to this company, intended to propel machinery on the Thames, for mechanical purposes, such as grinding corn, sawing wood, &c. It is on the principle of the screw propeller, completely immersed, is 7 feet diameter, and consists of six floats, or paddles, fish-tail in shape, 5 ft. 2 in. wide at the extremity and set on the axis at an angle of 45 degrees; a strong iron hoop encircles the whole, binding them together, and giving the necessary strength. From experiments, which have been made in the most careful manner, we understand that the results have exceeded the most sanguine expectations of the inventors, and established the economy of its power beyond a doubt. It has been most satisfactorily proved that, with a tide running at the rate of 2 miles per hour, a power is obtained equal to 1½ horses. Now, it being a mathematical certainty, that by doubling the diameter of the wheel, the force is quadrupled, and in like proportion for any increase in size, it follows, that if a 7-foot wheel, with a 2 mile tide, gives 1½-horse power, a 14-foot wheel would give 6-horse power, a 21-foot 13½-horse power, and a 28-foot 24-horse power. From the several experiments made, it was found that a 3 mile tide, with the 7-ft. wheel, gave 2½-horse power, a 4 mile 3-horse power, a 5 mile 3½-horse power, and a 6 mile tide, 4½-horse power. From these combined data the following results are obtained:—

Dia. of wheel.	Tide miles per hour	2	3	4	5	6
7	14	14	24	3	34	44
14	14	6	9	12	15	18
21	14	134	204	27	334	404
28	14	24	36	48	60	72

Thus it will be seen, that as the diameter of wheel and strength of tide increase, so in a mathematical proportion does the power developed; and with a wheel 28 feet diameter, and a six mile tide, 72-horse power is obtained. An additional advantage can be obtained by the use of this wheel—its peculiar formation allowing two or more to be placed behind each other; and the original force of the tidal flow can be recovered at a diameter's distance. As the cost for a machine of this description is confined to wages and wear and tear, it must, doubtless, for many purposes be more economical than any other description of machinery.

WOODS AND FORESTS.

By a Parliamentary return, just issued, we find the following statement of the income and expenditure of 15 of the Royal forests, which will enable our readers to judge of their value to the nation:—

	Income.	Expenditure.
New Forest	£9,228 15 5	£10,562 11 7
New Park	850 17 10	1,036 11 64
Parkhurst Forest	413 8 9	925 13 34
Dan Forest	15,130 16 11	10,907 9 5
Highmeadow Woods	4,262 0 5	1,727 16 10
Bere Forest	1,086 17 4	1,024 14 4
Deham Forest	4,706 16 24	2,652 10 14
Whitwell Forest	857 11 0	856 7 114
Salcey Forest	215 0 0	874 8 04
Whitchwood Forest	426 8 11	303 7 4
Halsall, or Waltham, Forest	896 12 3	594 3 1
Alce Holt Forest	4,356 3 6	2,916 11 2
Woolmer Forest	1,150 8 6	800 0 0
Eltham Woods	663 16 10	243 7 3
Chopwell Woods	663 16 10	438 15 44
Totals	£44,245 13 104	£35,839 7 4

IMPROVEMENTS IN PROPULSION OF STEAM-VESSELS.—Mr. W. Ayre, of Kingston-upon-Hull, has taken out a patent for machinery for propelling vessels, consisting of a shaft, connected with the engine, projecting through the sides as usual; this shaft carries two double-ended cranks, or levers, at right angles to each other. To the crank-pins, upon the ends of the crank-levers, are attached bars, or rods, being attached to pins upon cranks, or levers, upon two similar shafts, one of which is situated before the driving-shaft attached to the engine; the other situated behind that shaft—the centres of the three being in the same horizontal line. Upon these horizontal bars are placed floats, which act as the propellers, and are always in a vertical position, whether in entering the water, during their passage through, or leaving it; or they may be so arranged, that during their backward movement they may present their edges to the direction of motion, which may be done by means of eccentrics upon the crank arms, and forming the floats themselves, similar to Venetian blinds.

NEW METHOD OF CONNECTING CARRIAGES ON A RAILWAY.—At the Paris Academy of Sciences, a paper on this subject was read, the object being to diminish the effects of the centrifugal force at curves, and lessen the chances of trains running off the line. The coupling chains, as at present applied to carriages and waggons, are connected in a horizontal position; but the author of the paper (whose name is not given) dispenses with this mode of coupling, and substitutes two chains between each carriage or carriage, placed diagonally, each passing from the angle of one carriage to the opposite angle of the next carriage, and crossing each other in the centre. These diagonal coupling chains he places as near on a level with the centre of gravity of the carriages as possible; and, by this arrangement, it is considered that the friction of the flanges of the wheels, by which so large a portion of power is absorbed, is avoided, and the tendency to run off the rails destroyed. Each of the waggons, or other carriages, is, by this mode of attachment, dependent on those that precede and follow it; it cannot be forced into a side movement without the one before and behind also participating in such movement; and the two possessing greater force than one in which there is a tendency to slide from its place, keeps the waggon in its proper direction; the friction of the flanges of the wheels on the rails is imperceptible, and the running off the rail, or any part breaking, is rendered far less probable than by the present method. The author made experiments with models, loaded as waggons, three of which he placed on a railway, the middle one having no flanges on the wheels, and they ran on a curve three yards in diameter, without running off—the middle one following exactly in the route of the foremost one, and accurately guided between the two. He considers that on straight parts of lines, also, this mode of coupling will be productive of great advantage, and prevent the oscillating motion so very objectionable,

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—Capt. T. Angove (April 20) reports—Our operations on tutwork, in the adit level, at present are confined to cutting down the piece of ground from the point we holed, to complete the adit level to Nangle's shaft, which will occupy about a fortnight, and sinking a winze in bottom of level; both of those places look well for ore; the pitches in the back of this level, working on tribute, are producing from ½ to 1 ton per fm. The pitches in the old mine are improved. The men in Slob shaft have commenced to drive south. We shall commence to drive a cross-cut also south from the eastern flat-rod shaft in about a fortnight, which will be about 16 fms. deep from surface.

BEDFORD UNITED.—Capt. Thomas Ellery reports—At Wheel Marquis, the engine shaft is now down to the 90 fm. level, and the sumpmen are engaged cutting a plat; in the 90 fm. level, east of the sump winze, we are still driving by the side of the lode; the lode in the stopes, in the back of this level, is 2 ft. wide, and worth 40¢ per fm.; the lode in the 90 fm. level west remains unproductive. The lode in the 80 fm. level east is 2 ft. wide, producing good stones of ore, and more promising than for some weeks past; the lode in the winze, in this level, is 3 ft. wide, producing saving work; the winze is at present stopped, and the men are again put to rise in the 90 fm. level. There has been no lode taken down in the 70 fm. level east, or in the 47 fm. level east. At Wheel Tavistock, the lode in the 47 fm. level, west of Phillips's shaft, is 2 ft. wide, producing stones of ore. There is no material alteration in the 25 fm. level, east of the south engine shaft, or in the adit level east, on this lode.

CALLINGTON.—Capt. J. T. Phillips (April 24) reports—The lode in the 50 fm. level east, is 5 ft. wide, intermixed with muddle and stones of copper ores. The lode in Floyd's stopes, in the back of the 70 fm. level, is 4 ft. wide, and will produce 4 tons of copper ores per fm. In Lucas's stopes, the lode is 10 ft. wide, producing 10 tons per fm.; no alteration has taken place in the end since last report. In the 90 fm. level east, the ground is favourable. In the 100 fm. level south, on the lead lode, we are opening tribute ground; the same remarks will apply to the 90 fm. level south. At the south mine, the lode, in the 125 fm. level north, is producing silver-lead ores. In the 112, both north and south, we are opening tribute ground. In the 100 fm. level north, the lode is small, producing good work; we calculate the back will work at a low tribute as soon as the winze, now sinking from the 90 fm. level, is communicated to this level. In the 90 fm. level north, we are opening ground that will work at a moderate tribute.

CARTHEW.—Capt. W. S. Stephens (April 26) reports—In consequence of the late rain, we have again been enabled to work the water-wheel; and the water is taken from the 10 fm. level, in the new engine-shaft; the level is driving with four men, and the lode is looking exceedingly promising; the lode in the adit end, going south, is more regular and settled; the engine-shaft, at Legossick, is cut down 27 fms.

COATLITHE HILLS.—Capt. Paull (April 22) reports—No great alteration has taken place since my last, the men having had to bring forward a stope from the bottom of the winze, so as to open out the vein more effectually.

CWM ERFIN.—Capt. S. Nicholls (April 22) reports—The whim-shaft is just as last reported. The 10 fm. level is looking more kindly for ore than I have seen it since we started from the eastern shaft; the lode is getting larger, with some spots of ore. The stope, west of whim-shaft, is worth 10 cwt. of ore to the fm.; the stope, east of whim-shaft, is worth 1 ton of ore to the fm. The stope, west of the eastern shaft, is worth 6 cwt. of ore where the men are now working; but they are putting on their stope to the east, where there is a better lode to be seen in the back of the level.

DRAKE WALLS.—Captain R. Williams (April 24) reports—Brenton's engine-shaft is poor, being disordered by a large cross-course. At machine shaft are good branches; the stopes, east of Brenton's, below the 40, is paying work; the stopes, below the 40, west of machine shaft, is good saving work; the stopes, east of machine shaft, below the 40, is saving work. The 33 end, east of machine shaft, has been disordered by a large slide; we have the corresponding branches on the other side, but as yet are not well defined; in the stopes, behind the 33 end, are good branches; in the end, east of footway shaft, below the adit, the branches are improving; in the new engine-shaft the branches are small and poor. The drawing machine and crusher, now attaching to the new engine, I hope will be completed by the middle of May. We intend sampling March ores next Friday. I will give you the quantity by next Friday's post.

DEVON AND COURTENAY CONSOLS.—Capt. H. Secombe (April 25) reports—In driving our level, south on the cross-course, we have discovered another branch to the west of the cross-course, about 10 in. wide, in nearly a perpendicular direction, composed of muddle, chiefly with some peach or spar; we have also intersected another branch of ore, 4 in. wide, on the eastern side of the cross-course—the end will be still continued; in the end, driving north on the cross-course, no lode in the footwall has yet been seen; in the end, driving east on the south lode, the lode continues 10 in. wide, producing good stones of ore. Our engine-shaft is now 74 fms. below the 40 fm. level; the ground continues favourable for sinking.

DEAN PRIOR AND BUCKFASTLEIGH.—Capt. H. Choake (April 19) reports—I have set 2 fms. to drive west on the course of the lode in the 30 fm. level—price, 3/10s. per fm., by six men. Several branches are falling together as we extend west from a large lode; the lode is spangled with ore, 2 ft. big, and has made a decided improvement from the 20 to the 30 fm. level; I should recommend to put four men also to drive east in this level, to prove the eastern part of the mine, and, at the same time, to extend the level west with all possible dispatch. We have taken the men out of the 20 end west, and put them to sink on a branch in the bottom of the level, which has rather improved, and producing some good stones of ore. There is no particular alteration in the lode in the pitch in the back of the 20; but in the pitch, in the back of the 10, the lode is somewhat improved. We are about this day to weigh off the tributaries' ore, &c., and to take the samples, in order to get them assayed. The number of tons of ore weighed off will be forwarded by to-morrow's post.

EAST CROWDALE.—Capt. Steph. Paull (April 22) reports—That the ground in the 58 fm. level, driving north, is still spare to drive in, is a close killas, intermixed with branches of spar; we have driven in this end, towards the north lode, 9 ft. The ground in the south level, towards the main lode, is much more favourable, in a clear killas country, with small branches of copper ore; we have driven in this end about 14 ft. The 47 fm. level, driving west on the course of the north lode, is a very kindly end; the lode is about 18 in. wide, composed of capel, peach, killas, spar, and good stones of copper and lead ore; the rise and stopes in the back of this level are looking very well, although in the past week the quantity of ore raised from this place has been small—having had to beat up a dead piece of ground; next week we shall break a good pile of ore in this back; the winze sinking below the 47 fm. level east is poor, although, from the appearance of the lode, I hope it will soon improve. I am sorry to state, that the engine-shaft at Rix Hill is again suspended, owing to the great quantity of rain which has fallen during the past week. Our engine and pit-work are all in good order.

EAST CARADON.—Capt. Wm. Lean (April 22) reports—Agreeably with your request, I have this day, in company with your agent, carefully inspected the above mine, especially that part of it now in operation, which part is believed to be a continuation of the South Caradon main lode, judging from its direction, composition, and underlay. A considerable length of ground has been driven through it in the adit level, and a shaft sunk on its course 52 fms. below the surface, the average width is 18 in., its underlay from surface to adit about 24 ft. in 1 fm. north, and from the adit, which is 40 fms. deep, to the 12 fm. level, about 1 ft. 9 in.; it is composed of fine grain muddle, both white and yellow, soft spar, peach, and spots of rich copper ore, and at times producing stones of that mineral in the midst of a beautiful granite stratum, which is very favourable for exploring; so much so, that an efficient pair of men could sink 5 fms. per month, provided they had not to contend, as at present, with drawing the water and stuff to the adit level—the ground will also stand without the expense of being timbered; to the south of this shaft there are several lodes said to exist, some of which have been intersected, and partially opened on in the adit level, but there being a crush in the level in that direction, prevented me from making a survey of the same—nevertheless, I doubt not the truth of it; the set being a very extensive one, and the numerous, as well as the productive, lodes there are in the South Caradon Mine, which must, judging from analogy, pass through East Caradon Mine, both north and south of the shaft, which makes it the more desirable to speculate on—all of which are comestable by horizontal or diagonal rods from the present shaft, should you come to the determination of erecting an engine thereon; this shaft appears to be in a central spot, and could be made available in a short time, and at a little expense, to receive pitwork of sufficient size, to enable you to sink deep enough to prove the mine. You are aware no doubt of the extra expense you are subjected to, in drawing the water and stuff to the adit level by manual labour, as at present; and I may add that it is almost, if not altogether, impossible to sink deeper by the same power. Under the above circumstances, one of two things should be done, either to abandon the concern at once, or to erect an engine forthwith of sufficient power to prove all the lodes in such way and manner as can best be devised at any particular time hereafter; the latter choice in my opinion is preferable to the former, for the following reasons—viz.: 1. Should the mine be abandoned, all the money expended would be thrown away on your part, because I do not consider the mine has had any thing like a fair trial, and the most promising part of the lode I saw in the mine was at the deepest part. 2. The locality in which the mine is situated, on the eastern dip of the hill, through which passes all of the South Caradon lodes, 8 or 10 in number, I believe the majority of which are very productive; and this mine, South Caradon, being situated on the opposite or western dip of the hill, I see no reason at all why you should not fairly calculate on finding the same lodes, more or less productive, on your side of the hill. 3. The present time presents

a favourable opportunity for purchasing suitable materials, in order to prove the mine, together with the facilities offered by the railroad, in the carriage of lime, coal, &c., not forgetting there is a plentiful supply of stone at or near the spot, all of which will effect a great saving. 4. Considering the favourable nature of the ground, a short time, comparatively speaking, will prove the mine to a considerable depth below the present point; and, I verily believe, were you to give it up, other parties would be forthcoming to resume the working of it; under the above circumstances, Gentlemen, were I in your situation, I should vote for the erection of an engine, and prove the mine to a much greater extent and depth, as quickly as possible.—A meeting of adventurers is convened for Monday next, at Webb's Hotel, Liskeard, to take this report into consideration, and to determine on future operations.

GREAT MICHELL CONSOLS.—Capt. T. Richards reports—The lode in the sump-winze contains muddle, ore, fluor, capel, and spar, and is, throughout the part being carried, for about 4 ft., very encouraging, and promising improvement. In the 85 fm. level, west of the sump-winze, the lode consists of spar, muddle, and ore—still laying open tribute ground.

HOLMBUSH.—Capt. W. Lean (April 25) reports—The diagonal rods are attached to the main rods, and a commencement made to fork out the water, preparatory to sinking the diagonal shaft. The lode in the 120 fm. level south, is 5 ft. wide, composed of spar, white iron, and lead, worth 7¢ per fm.; the lode in the north end, in this level, is 4 ft. wide, producing stones of lead. The lode in the 110 fm. level south, is 4 ft. wide, composed of quartz and lead, worth 5¢ per fm.; the lode in the stopes, in the back of this level, is 5 ft. wide, composed of quartz and stones of lead (saving work). The lode in the 100 fm. level south, is 2½ ft. wide, composed of spar, prau, and lead, worth 5¢ per fm.; the lode in the rise, in the back of this level, is 3 ft. wide, composed of soft spar and spots of lead (saving work); the lode in the winze, sinking below this level, is, at present, small and poor, having met with a splice in the lode; we hope, after we have sunk below this point, it will be found to improve; the flap-jack lode, in the 100 fm. level east, is 2½ ft. wide, composed of muddle, blende, spar, and spots of copper ore. The lode in the 90 fm. level south, is 20 in. wide, composed of soft spar and stones of lead ore. There is no alteration in the tribute department during the past week.

KIRKCUDBRIGHTSHIRE.—The agent (April 22) reports—The 50 end, driving north, is within a few feet to the branch—ground hard. In the 40 end west, the lode is 4 ft. wide, yielding stones of lead, and is in favourable ground; in the same end east, on the caunter, the lode is 3 ft. wide, yielding 1 ton per fm. In the 30 end west, the lode is 3 ft. wide, yielding ½ a ton to the fathom—favourable ground; in the same end east, the lode is 3 ft. wide—ground more favourable for lead. At Keith's shaft, sinking under the 30 fm. level, the lode is 2½ ft. wide—ground favourable; good stones of lead in eastern end.

MENDIP HILLS.—Capt. F. C. Harpur (April 24) reports—The lode in the 38 fm. level, south of shaft, has greatly increased in size since I last wrote you, being at present rather more than 3 ft. wide, composed principally of flookan, white spar, and iron, favourable for driving—price, 40s. per fm. In the slag department, in extending the open cutting towards the eastern slag ground, which is being done as fast as possible, we find the beds of slag stuff about the same thickness as for some time past—viz.: 12 ft.—improving in quality as we proceed up the valley. The carpenters are busily engaged with the enlargement of the dressing-floors, in order to return a larger quantity of slags to the furnaces.

SOUTH WHEEL TRELAWNY.—Capt. W. Jenkin (April 24) reports—That Snell's engine-shaft is in course of sinking with nine men—ground just the same as last mentioned—down under the adit 90 fms. Water just as it has been for some time past.

TAMAR SILVER-LEAD.—Capt. J. Sprague (April 24) reports—In the 175 fm. level the sumpmen have been engaged cutting a plat, and other necessary work, which, we hope, will be completed by the end of this week, when we intend to commence driving north and south in this level. In the 160 end, south of the shaft, the lode is 18 in. wide—saving work, but of a coarse nature. In the 145 end the lode is 2 ft. wide, interspersed with ore—work of a moderate quality. In the 135 end there has been no lode taken down since last report. At the north mine, in the 70 end, the lode is about 3 ft. wide, producing good stones of ore, and presenting a favourable appearance. In the 50 fm. level the lode is still about 18 in. wide—work of a promising description.

TRELEIGH CONSOLS.—Capt. William Symons (April 22) reports—The 120 cross-cut, north of Christoe's, is to cut the lode. In the 100, east of Christoe's, the lode is 2 ft. wide, of a promising nature, with stones of ore. Garden's shaft, below the 100, is still in the country; in the 100, east of ditto, the lode is 20 in. wide, producing, in general, spar and muddle; in the 100, west of ditto, the lode is 3 ft. wide, very promising, yielding good stones of ore. In the 90, west of ditto, the lode is 1 ft. wide, ore, but not to value. In the rise above the 80, the lode is 15 in. wide, with stones of ore only. In the 70, west of ditto, the lode is 16 in. wide, worth about 2¢ per fm. In the 60, west of ditto, the lode is 3 ft. wide, split into two parts, worth 4¢ per fm. In the rise above the 60 west, the lode is 14 in. wide, with stones of ore. In the 50, west of ditto, the lode is 1 ft. wide, but little mineral. The adit, east on Wheel Parent, the lode is 2 ft. wide, ore, but not to value. The adit cross-cut, north from engine-shaft, to cut Wheel Orphan lode.

TINCROFT.—Capt. Peter Floyd (April 24) reports—We have an improvement on Highburrow lode, in the 142 fm. level, which is now worth 9¢ per fm. for tin. A good run of tin ground has gone down in the 120 fm. level, which we shall get under in the 142 by driving about 10 fms. further east. In the 120 fm. level, west of the engine-shaft, we have set a cross-cut to drive south to cut Martin's lode, and expect to cut the lode by driving about 4 fms.; and, from the 132 fm. level having proved a productive one, we hope to cut the lode under favourable circumstances. Martin's east shaft, on Martin's lode, is now down about 3 fms. below the 120 fm. level, in which level east the lode is 18 in. wide, producing good stones of ore; in the same level west the lode is 2 ft. wide, worth 6¢ per fm.; and the stopes, in the back, are improved since last report. The 90 fm. level west, on Chapple's lode, is large and kindly, worth 9¢ per fm. The 80 fm. level west, on the same lode, is worth about 16¢ per fm. At North Tincroft, the lode we have not yet cut in the cross-cut south, in the 100 fm. level, but expect to do so in a few days. The 90 fm. east is worth 10¢ per fm. The 80 east is worth 11¢ per fm. Palmer's shaft is down about 6 fms. below the 80 fm. level; in the 80 fm. level west the lode is 4 ft. wide, worth 9¢ per fm. The 70 west is worth 8¢ per fm.; the winze, in the bottom of the 70, is improved since last report. The 60 fm. level has reached the boundary; the men are sinking a winze in the bottom of this level, to ventilate the level below. At Wheel Providence, we are driving east and west on the lode in the 33 fm. level; the lode is 3 ft. wide, and very promising. We are still stoping the 21 fm. level at Wheel Providence, to let down the water, in order to clear the level east; upon the cross-cut south being cleared out, we find it has been driven 20 fms. from shaft; the cross-cut north is cleared and extended about 17 fms. from the shaft. I have been at the Carn Brea Mines and examined their workings, on the south lodes, which are exceedingly rich; these lodes, three of which we have already cut in the 58 fm. cross-cut, south from Chapple's shaft, I am of opinion should be explored without delay, as they are of a promising character; I have no doubt of their proving equally productive here, when opened upon. On the whole, our prospects are improving; and I am of opinion, that perseverance, and a fair amount of tutwork, cannot fail to make Tincroft a good and profitable mine.

WEST WHEEL JEWEL.—Capt. Rich. Johns (April 24) reports—There is no lode taken down in the past week on Wheel Jewel lode, neither in the levels nor the winzes—they are as last reported. In the 30 cross-cut, south from Tolcarne tin lode, the ground much the same for driving as when last reported. In the deep adit, west of Quarry shaft, on Tolcarne tin lode, the lode is 18 in. wide, worth 4¢ per fm. In the stopes in the back of the 12 fm. level, west of Pryor's winzes, on the same lode, the lode is worth 25¢ per fm. We have 4 men stoping in the back of the 12 fm. level, east of Pryor's winzes, on the same lode; the lode is 4 ft. wide, worth 25¢ per fm.

WEST WHEEL MARIA.—Capt. Thomas Rodda (April 25) reports—The western engine-shaft is down below the 64 fm. level about 8 fms., the ground in which is much the same for sinking as last reported. The south lode, in the 34 fm. level, west of Vivian's shaft, is about 2 ft. wide, producing spots of ore occasionally.

WHEEL ADAMS.—Captain J. Prince (April 25) reports—That the work done in the new engine-shaft, during the past week, has been confined to clearing a few feet only, in consequence of an influx of water from the 50 fm. level, through cross-cutting west, as we previously proposed doing, for the purpose of ascertaining whether the main part of the lode was, or was not, standing in that direction, as was described in our last week's report; this work has been accomplished with favourable results; the water is decreasing, and the workings are resumed; the cross-cut in the 50, mentioned above, has been extended west about 10 ft.—the first 2 ft. consists of a soft, lightish blue slate—the remaining 8 ft. is a regular lode, composed of quartz, spotted with lead, producing from ½ to 1 ton of the latter per fm. The ground in the 40 is become dry, and that between both the levels will soon be drained also. The tributaries have commenced clearing the 50 fm. level, on the western silver-lead lode, at their own expense, to have the advantage of working the backs the remainder of the month, at 9s. in 12; this level has (as you are aware) been crushed and abandoned for 18 months past; the large quantities of water issuing through a lode of great friability precluded the possibility of working it; I have, consequently, not seen the lode in this level, but the miners who worked it say it is very productive; this level will be proved in the course of the present month, and the ground laid open for stoping on both lodes (quartzose and western). The parcel of ore purchased by the Tamar Smelting Company shall be shipped immediately a vessel arrives for it.

WHEEL BARBARA.—Capt. N. T. Stephens (April 26) reports—There is but very little alteration since last report. The lode in Truscott's shaft, on which we are now sinking, is a very fine, kindly lode, and promises to be productive in depth—ground easy. The engine-shaft is still hard for sinking; and

with a change of stratum, I do not think we shall meet with much change may be quickly effected.

THE LANEY.—Captain John Bryant (April 25) reports—The ground, in sinking Phillips's shaft, under the 62 fm. level, is much as usual. The lode in the 62 fm. level north is worth 31 per fm.; the south end, in this level, is worth 121 per fm. The lode in the 52 fm. level north is improved, worth 131 per fm.; in this level south the lode is larger than for some fathoms behind the end, and worth 81 per fm.; the stopes, in the back of this level, are somewhat improved since my last. The lode in the 42 and north is 4 ft. wide, composed of can, spar, and lead, worth 81 per fm.; the stopes, in the back of this level, are rather hard, producing, however, a fair quantity of lead. The stopes, in the back of the 32 fm. level, are improved. Trelawny's shaft, sinking under the 42, and the 22 cross-cut east, are without any important change. At Vivian's, the lode in the 30 fm. level north is 4 ft. wide, composed of spar, capel, can, and lead, worth about 51 per fm.

FOREIGN MINES.

ALTEN MINES.—The following is the estimated produce for February:—

Mines.	Tons ore.	Per ct.	Tons copper.
Raipas	75	5	3.75
United Mines	33	6	1.98
Ryder's	4	6	0.24
Mancur's	4	6	0.24
Michell's	6	8	0.48
Old Mine	25	6	1.50
Cole's	2	4	0.08
Powder House	2	4	0.08
New Lodes	2	8	0.16
Total	153		8.51

Mining Report from the 22d of Feb. to the 18th of March.

Raipas.—Monk's shaft, now at the depth of about 9 fms. below the 10, has passed through the lode, and being in a hard, calcareous stratum, the progress made in sinking is slower than formerly. We still hope to reach the level of the 20 fathom workings, by the end of this month, and shall immediately afterwards drive a cross-cut southerly, to intersect Labouchere's lode, which will be subsequently explored by levels and winzes, in the usual manner. The lode in the 15 fm. level is hard, but yields good returns; the produce is composed principally of ferruginous quartz, thickly impregnated with rich purple ore. In the 10 fm. level the lode has again been found; it contains good ore, but as yet is very irregular and unsettled. The winze communicating the 5 and 10 fm. levels has been holed, and two stopes have been set on the ore ground between these levels. The 20 fm. level is still driving in the jaspery clay-slate, and without any perceptible change since my last report; about 4 fms. have been completed towards Monk's shaft. All the present workings below the 15 fm. level are in dead ground, and are likely to continue so until Labouchere's lode is again intersected by the proposed 20 fathom cross-cut. Carr's lode has improved, and produces a greater quantity of ore than for some months past; its course is still equally undetermined, and the produce is fluctuating. The returns to the smelting-house, to the end of February, have only, in one instance, improved; at the expiration of this month, we will endeavour to keep the produce of the several workings separate, in the hope thereby of being able to improve its per centage of copper.

United Mines.—No alteration can be noted in the prospects of these mines. The stopes and tribute pitches continue to yield the usual fair returns; and, notwithstanding the fluctuations and inconveniences we have latterly been subject to, we have still every reason to be satisfied with the result of our operations. Hoskins's lode has again improved, and the tributers are producing a small quantity of very good gossany ore. At Woodfall's, the ice continues to increase, preventing us from working some of the most profitable bargains.

Ryder's.—The workings have not improved, and the whole of the bargains have in consequence been suspended. Four men are now employed in exploring one of the new lodes, where the prospects are flattering; this lode is smaller, but consists almost of solid prills, and, at present, will pay the cost of working. The produce of this mine is very trifling, and we cannot expect to find any improvement before the summer.

Mancur's.—The workings have again deteriorated, and the bargains have been suspended, with the exception of one stope, where two men are employed in exploring the lode. Nothing of importance can be done at this mine before the summer, when the surface operations can be resumed.

Michell's.—We are still frozen out of the best and most productive workings. Two pitches only are worked on the old backs, which yield profitable returns.

Old Mine.—The returns from hence continue good, and the prospects have not deteriorated. We have sent eight men to cut into and explore the old little barrow; their contract extends to three months, at \$7½ per ton, of 5 per cent. ore, with the usual increase in proportion to the quality.

New Lodes.—The produce of the working in Mathisen's Valley is small but remunerative; and, when enabled further to explore the surface, we expect to meet with more extensive deposits of ore. We are still subjected to great inconvenience with the immense accumulations of ice on every part of the works. Several of our roads are now quite impassable; some of the mines are quite full, and most of the valleys are filled with glaciers, which are daily increasing. During the many years I have been in this country, I have never seen such extensive masses of ice, neither have we before suffered the same inconvenience at the mines.

At Raipas Mine, on the highest part of the mountain, we find no difference between this and former years; but in Kaufjoid, and all the valleys emptying themselves into the sea, the accumulations of ice and snow are beyond belief.

ANGLO-MEXICAN MINES.—Guanajuato, March 6.—*Asuncion.*—The following is the result of the month's workings:—

Week ending—	Memoria.	Sale.	Loss.
February 5	\$422 5 0	\$624 0 0	\$110 5 0
" 12	684 7 6	525 4 0	422 1 6
" 19	425 3 0	719 0 0	65 6 0
" 26	410 0 3	731 1 0	44 3 9

Total loss in the four weeks.....\$643 0 3

From the 18th Sept. to 26th Feb., we have disposed of 2210 cargoes of ore, which selling for \$23,527 6, shows an average price, during all that time, of \$10 1-5th per cargo. We are driving on the San Gregorio level (now called the Frente de San Severo) with care and energy. Of late all has been loss; but it has been inevitable; however, I begin to expect a favourable change.

To-morrow I go to the mine, for the purpose of exploring some old places, that I would rather have deferred putting to work until Parkman's return; but as he has been away much longer than was anticipated, I must see myself what can be done. So poor as Asuncion at present, that it is difficult to procure buzones, who, in fact, meet with much more profitable work in other mines. In the meanwhile, as I have sufficient cash in hand for all purposes, I trust the board will have a little patience with me, until I can determine on some method of avoiding loss, or, perhaps still better, of realising some profits.

Haciendas.—I have long been looking out for a favourable opportunity to increase the rent of San Agustín; but as I can only effect this object by abandoning the clause for sale whenever we please, I have until now demurred; but finding that it is next to impossible to meet with a purchaser, I have at length made arrangements to obtain a few hundred dollars more rent—losing the right to turn the new tenant out during the next five years, but by no means giving up the power to sell the property, if I can find a capitalist willing to buy it at any moment.

BOLANOS MINES.—Received April 24, per *Thames*; report dated March 2.

EL BOTE.—In handing you the mining report of this negociation for last month, I beg to inform you, that the ground in San Genaro shaft is still favourable for sinking, as you will perceive by the progress made, having sunk 9½ varas, and timbered 7 varas, during the month. The water, also, has not increased, and with two malacates we have sufficient power to keep under the present coning stream, as well as the manto; and should the water not increase, and the ground continue favourable for sinking, I hope, in five months from this date, to reach the depth of the next proposed cross-cut, which is 76 varas below Victoria, and 46 varas below the cross-cut De la Compania. In Victoria cross-cut our progress has also been very favourable; and should the good ground for driving continue as it has during the past month, I hope to see the communication with Guadalupe east made by the latter part of May or the beginning of June. We last night cut a small branch in the above cross-cut, about half a vara wide, composed of quartz intermixed with bronze, which has not a very unfavourable appearance for ore, and which, I presume, is the small vein we cut in San Jose cross-cut above, but with less underlie; as, with the same underlie that it has in San Jose, we ought to have cut it some varas nearer the shaft. In the cross-cut De la Compania, since we have ceased to work the pumps in the planes, the driving has been continued without intermission, or hindrance, on account of the water, notwithstanding our near approach to the vein, being driving, at present, through the horse between Providencia and the main lode; although, on the 27th ult., we cut a large stream of water, which at once affected the planes. It has since begun gradually to lower, and a few days only are now required to tap the vein and to let down the water from the planes, which may, perhaps, send us out again for a short time, until we can drain with the malacate the head of water now against us. In Guadalupe east, our progress in driving has also been very favourable, having driven 10½ varas during the month, leaving about 20 varas more to be driven to place the level immediately in front of the Victoria cross-cut; and, as it is very desirable to make this communication with San Genaro in the shortest possible time, an additional set of bands have been placed in the level, in order to push the driving; as we can reach the proper point, to open the cross cut from this side also, and to drive on two points by way of hastening its communication. The vein in this level, I am sorry to say, has not improved; on the contrary, the whole appearance, at present, is less favourable for ore than when I last addressed you. In the level east from Poso de Guila, the vein has greatly im-

proved; and, as the water in the planes did not rise above the bottom of the level, we have been enabled to form back stopes, which have yielded a considerable quantity of cargo. We have also opened a winze 15 varas to the east of Poso de Guila in ore ground, which will communicate with the workings below. The vein in the workings in the bottom of Guadalupe east continues in tolerably good ore, but having reached to the level of the water, but little has been done in them. In the rise in the back of San Antonio, the vein has become much smaller, and ore less productive.

Extract from a Letter, dated March 2.

I have to acknowledge the receipt, by last packet, of your favours of Dec. 1 and Jan. 1.

CELESTINA MINE.—The end driving east, as recommended by Messrs. Placci and Mannell, has led to nothing yet, and if nothing is discovered shortly, I intend to suspend it. The north end of Providencia is still unpromising, though we have met with some small bunches of good ore, from time to time, in the course of the month. The workings on ore continue narrow, but of good quality, and it appears we are not losing. The memorias for the month have amounted to \$2307 7 2. We have extracted 174 cargoes of ore, which may be worth a trifle more, besides which we have cleaned 40 cargoes of poorer ore from the refuse heaps, which cannot be considered as altogether belonging to the work of the month. While, therefore, this mine continues to cover the expense of working it, I think the Providencia end should proceed, as it may lead to another good bunch, and as it is so shallow and dry, it admits of being worked with economy.

SAN FRANCISCO DE PAULA MINE.—I have now given this mine a full and fair trial for one month, to ascertain if it could be worked without loss, under the strictest system of economy. We have had only one bargain at a low price, and every other expense has been curtailed as much as possible; but it has been necessary to employ one whole malacate to keep the water out of the fifth cross-cut, and about a quarter of another, for drawing the ores and attle—the chief workings being at the depth of 150 to 200 varas from the surface. We have had a pretty full complement of buzones, working at the third, fourth, and fifth levels. Our best point is eastward from the fifth cross-cut, but even that has fallen off lately; and on the same vein, in the western wall of the same cross-cut, the buzones cannot be induced to work, as the ore is not more than an inch in width; and a few varas above, on the same vein, the winze is without ore. The result has been—total cost of memorias, \$3486 1 7; 240 cargoes of ore extracted, worth about \$8 per cargo, \$1920—showing a loss of \$1566 1 7. The ores, moreover, have declined in ley, though those from the fifth level continue of good quality.

Under these circumstances—viz.: that the mine, in its present state, is incapable of covering its cost, even with the most rigid economy, no improvement can be expected, as we are carrying on no works of discovery—doubting the expediency of prosecuting such works, even if my means were more ample, and attending to your repeated instructions, not to risk diminishing your capital in working these mines, I have come to the determination of delivering San Rafael to its owners.

LOBETO MINE.—In this mine, the workings on the San Nicolas vein continue to look promising; and, although there will be a small loss on the month's work, I think it would be advisable to proceed still with the western end, which is evidently improving.

Extract from a Letter, dated March 3.

My last letter will have informed you of the drawbacks we have met with in the Compania cross-cut; the water continued with unabated strength until the 20th ult., when it began to lessen. Since writing to you, until that date, the water was with difficulty kept down with four whims, and it hardly allowed us to extract cargo—so much so, that the extraction in the weeks ending 12th and 19th ult., just reached jointly 900 cargoes. The week ending 26th ult., the water allowed us to work and extract ore—the extraction passed 1000 cargoes; on the 27th, a fresh stream of water was cut in the Compania cross-cut, the water in the planes seems to be lowering slowly. I fear that we may again have another drawback, as, since the night of the 1st inst., we have not been able to extract ore, as the four whims are busy lowering the water, which is at present on a high level in all the extent of the cross-cut. There is now no doubt that the water is going down in the planes, although slowly; and even supposing that, after a time the water does not allow us to work in the cross-cut, so long as the planes are dry, there will be means of extracting ore, in order to cover all our expenses, which, if the water will allow us, I trust fully to do in April; as there is no doubt that, as soon as the cross-cut has advanced far enough, the whole of the water will come away from the planes. I trust, therefore, by next packet, to be able to give you better news; and, if the water will only allow us, I have no doubt the mine will soon make up the losses which we have lately had.

PACHUCA MINES.—March 11.—In compliance with your request, we have examined the Pachuca Mines, which are all very poor at present, but not altogether unpromising, and in case the company should resume the workings of either, we would recommend, as the most promising points, the sinking of San Guillermo shaft, the driving of the 50 vara level west from ditto, and also the 81 vara level north through the vein; in the 50 vara level the lode is 25 varas wide, with pintas of azogue ore.

REAL DEL MONTE MINES.—*Extract from Letter, dated 12th March:*

—We have to acknowledge the receipt of your favour of the 31st December.

On the 23d ult., we received, from Mr. Wm. Rule, the powers to act in the company's affairs; and we have, in compliance with your instructions, taken upon ourselves the management until we shall be relieved by Mr. Rule's successor. The directors will perceive, that the loss on January account is very large—it arises from various causes. The costs of the mines, generally, are increased, compared with the previous months, say—mines, \$1500; transport service, \$3600; two bars short, \$2400; hacienda excess, \$4700—\$12,200.—The excess in the mines and haciendas arises principally from the efforts made to increase the stock of fuel, which had been reduced so low as to threaten the paralysation of the concern. The result for February will, perhaps, be equally as unfavourable as that of the previous month—there being no more than 38 bars. This is to be attributed to a deficiency in the grinding in Regla—the waggons having been employed in bringing firewood, instead of carrying the requisite quantity of ore, to keep the patio in full work. On reference to the Regla report, it will be observed, that only seven bars were produced by the amalgamation process, in consequence of this deficiency; and in the mines, on the other hand, there were frequent breakages in the Moran engine, which reduced the produce of smelting ores from that mine, upon which the greatest reliance had been placed. The prospect for March is less unfavourable; but experience will have shown the directors that we have rarely been in a situation to estimate, with any degree of certainty, the result of a future month. March is not an exception to this rule. Should there be no breakage to interrupt the works at Moran, the produce may be expected to be larger than the estimate; but, should we have a repetition of the accidents of last month, we shall then suffer, as regards funds, very severely. Our attention has been called in a serious manner to the want of fuel, and the absolute necessity of taking steps immediately to supply the various wants of the engines and the hacienda of Sanchez. We have purchased 100 mules, to be employed in the carriage of firewood; but, as we could not obtain mules already broken to the pack-saddle, they will not afford us immediate relief, and we must have recourse to freighting mules with ores from the mines, in order to allow the waggons to be engaged, if required, in bringing in fuel. The necessity of this purchase will be obvious to the directors; for it must be considered that, if we continue to do as formerly—namely: take the waggons from carrying ores—our returns of silver will suffer by the want of the combination necessary, for the purpose of supplying fully—first, the mines with fuel for drainage; and, secondly, the haciendas with the ore sufficient for their full employment.

Since the month of September last, both haciendas have suffered most severely, in the returns of silver, from these causes. Sanchez could not do full work for want of wood to calcine the ores; and in Regla, where no calcining is required, the want of waggons caused a deficiency of grinding of between 600 and 700 montones, the corresponding silver of which may be estimated at from 4000 to 5000 marcos; and these circumstances have caused your late monthly results to be so unfavourable. There is still a large stock of poor ore in the mines, and the captains assure us that a great extraction might be made of a very fair class; but, if we are not prepared for the exigencies attendant upon both mines and haciendas, so that they may be always working in conformity, all our efforts will be unavailing to obtain something like an average favourable result. Since Capt. Rabling's report was sent in, the Santa Teresa level has improved materially—so much so, that the smelting ore extracted increased from 6 bags, last week, to 16 this, with an improvement in the ley of the ore.

Mines Report.—In the Santa Teresa, or 216 vara level, driving east from San Pablo winze, under the slide, alluded to in former letters, the vein is 2 varas wide, with a branch of smelting ore, varying from 4 to 6 in. wide, the remainder producing azogue ore. In the stopes, west from San Pablo winze, below the Santiago, or 191 vara level, the vein is one vara wide, producing azogue and smelting ore. The Santa Teresa, or 216 vara level, driving west from Dolores diagonal shaft, still continues hard and poor. In the same level, east from the shaft, the vein is 2 varas wide, with a branch of esquilupa ore, about 8 in. wide, the remainder composed of white quartz and spots of good azogue. In the 157 vara upper level, driving west from cross-cut, south of Dolores shaft, on the Taponia, the vein is ½ vara wide, with pintas of azogue ore. There are 4 destajeros employed stoping east from winze, below the 157 vara level; 100 varas east of the above mentioned cross-cut, on the Taponia, the vein is 1 vara wide, and producing about 15 cargoes of azogue ore per week, assaying 10 marcos per monton. In Santa Ynez, there are 6 pitches working north and south from rise over the adit level; 143 varas north from shaft, the vein is 4 to 5 varas wide, of azogue ore. The above-mentioned labores are producing about 300 cargoes of azogue ore per week, assaying 12 marcos per monton. In the 58 vara level, driving north from the shaft, the vein is 2 varas wide, and producing about 35 cargoes of azogue ore per week, assaying 8 marcos per monton. There

remains 38 varas to reach the San Albino winze. Rosario Mine is producing about 170 cargoes of azogue ore per week, assaying about 9½ marcos per monton.

Acosta.—In San Pedro shaft, there has been only ½ vara sunk during the month, owing to the abundance of water; the total below the San Enrique is now 21 varas 11 dedos, and it is proposed to sink about 4½ varas more, and commence a new level, which could be accomplished in eight or nine weeks without lets. The Aviadero, or 130 vara level, driving east from the Santa Brigida, on Acosta lode, has a little improved during the month; the vein is about 2 ft. wide, and, although hard, has a promising appearance, yielding a little azogue ore. In San Bartolo winze, sinking below the Aviadero level, 150 varas south of Acosta, the lode is about 4 ft. wide, one of which is good azogue, with occasional spots of smelting ore, and ground soft. The stopes, south of San Rafael, and north from La Cruz winze, between the San Ysidro and Aviadero levels, continues to yield azogue ore of a tolerably good quality. The workings below the Aviadero level, where barreteros are employed on partido, and from San Cayetano winze, 43 varas north and 50 south, yield about 40 cargoes of smelting ore per week, besides azogue of a good quality, and look promising for deeper levels. La Virgen workings, below the Aviadero level, on Acosta lode, a little east of the Santa Brigida, are looking promising; here barreteros are also employed, who raise a little smelting, and a good quantity of azogue ore. In Esperanza winze, sinking below the San Ysidro level, 412 varas south of Acosta, the lode is about 3 ft. wide, producing a little good smelting and azogue ore. The stopes, south of San Casmo winze, over the San Patrio level, is still yielding about 100 cargoes of azogue ore per week, having an average ley of 12 marcos per monton. In the adit level, we have commenced driving east from the Santa Brigida, on the south part of the Jabones vein, 41 varas south of San Jose old shaft, where the lode is about ½ vara wide, with a branch of good metal about 2 dedos, which will more than pay for driving the end, and seems to improve; this place is exploring new ground.

El Sacramento.—The San Antonio, or 81 vara level, driving south from the shaft, is in soft ground; the lode is about a vara wide, and at present poor, but has occasionally been giving a few bags of azogue ore, and has a promising appearance. The San Ysidro, or 106 vara level, driving south from the shaft, is at present rather hard; the lode is 2 varas wide, two feet of which is spotted throughout with good azogue ore. The stopes over the San Miguel, or 48 vara level, 168 varas south of the shaft, continues to yield 30 or 40 cargoes of azogue ore per week, having a ley of 15 or 16 marcos per monton. The working, north of Santa Barbara winze, above and below the 40 vara level, is still yielding about the same quantity of azogue ore described in former reports, having much the same ley. The workings above and below the San Felipe level, 245 va ras north of the shaft, are not producing quite so large a quantity as formerly, but the ley is just the same.

Moran.—There have been bearers and cisterns put in below the Disengano level, and a standing lift fixed, and other preparations made for sinking the shaft; but, owing to the frequent breaking of some of the castings in the engine, we have been prevented from pursuing that work up to the present time; however, the engine seems to be again in good repair, and the mine in fork throughout—therefore, we shall commence sinking immediately.

The Disengano level, driving west from shaft, has greatly improved since last reported on; the ground is soft, and lode about 1 vara wide—the whole of which is smelting and azogue ore, of a tolerable good quality; this end is fast approaching San Jose bottoms below the Esperanza level, and has effected a complete drainage of the same. This level, driving east from shaft, is progressing slowly, owing to the hardness of the ground; the lode is about 1 ft. wide, which yields a small proportion of smelting ore. Dolores winze, sinking below the Esperanza level, west of shaft, has still a promising appearance, yielding a little smelting and azogue ore. San Lorenzo winze, sinking below the Esperanza level, 26 varas east of Moran shaft, is still hard, and lode small, but contains a little good smelting and azogue ore. The Esperanza level, driving west from shaft, is still hard; the lode is about 1 ft. wide, and unproductive; this level, driving east from Santa Barbara shaft, is still hard, but the vein is a little improved, having a very promising appearance, with good stones of metal. Santa Barbara shaft, sinking below the Esperanza level, has greatly improved since resumed; the ground is favourable, and lode about 2 ft. wide, the whole of which is azogue ore, looking very promising. The labores, where barreteros are employed on partido, have much the same appearance as last month; however, the San Jose bottoms being now drained by the level below, we hope to increase the raising of smelting ore, January costs, \$76,138; returns, \$64,017—showing a loss of \$12,121.

UNITED MEXICAN MINES.—Guanajuato, March 6.—*Mine of Rayas.*—

I have much pleasure in confirming the favourable anticipations I held out in my last, respecting the increased produce of Santo Toribio. This point has continued to extend itself, and has given, during the last three weeks, upwards of 600 cargoes of ore per week, and continues to look well; with increased ventilation, it is hoped to employ more hands than can now labour in the working, from want of air, when a yet further increase may be expected. I have already been enabled to employ the whole of the hacienda of Barrera on the ores of Rayas. In the other points there is no change. San Cayetano gives but a small quantity of ore, but it is of fair quality. The water in the mine is now decreasing; it was reduced three-quarters of a vara in each of the two last weeks, and half a vara the week previous. I annex the comparative statement of produce and outlay, for the last four weeks, and inclosed is Mr. Glennie's report to the 4th instant.

4 weeks ending	Picked ores	Half Sales.	Outlay.
January 29	Cgs. 2330	\$ 4378 0 0	\$ 20,763 4 5
Feb. 26	3201	4679 3 4	22,415 7 5
Cargos 671		\$ 301 3 4	\$ 1,662 3 0

Increase. Increase. Increase.

Haciendas.—Barrera is (as you will have learnt from the former part of this letter) now fully employed. I have given notice to the present contractors for the hacienda of Dolores, that I shall require it for the ores of the mine of Rayas, as these are accumulating; and it is not unlikely, but that I shall have to give a similar notice to the contractors for the hacienda of Duran.

Quicksilver.—Since my last, I have purchased 70 bottles.

Remittances.—There is still no safe mode of transmitting the directors a special remittance; but I met with a bill on Mexico, due 19th May, for \$12,000, which I have purchased, and the proceeds thereof will be forwarded by another bill on London.

W. HEATH.

Report on the State of the Workings of the Mine of Rayas.

March 4.—La Purisima.—No variation has taken place in the small produce of ores extracted from this part of the mine.

San Pio and San Antonio.—A small quantity of ore is being extracted from the upper part of San Pio. In the end of San Antonio, some bunches of ore of good quality present themselves occasionally; but the general produce is inconsiderable. The point, on the south-east side of the road (Las Reyes) is yielding a fair portion of ore of good quality. The peculiar nature of the present state of these old workings necessarily confines the operations to a limited scale. Seven pairs of barmen are employed by day, and an equal number by night.

San Cayetano.—The large dry wall in the pit of San Pablo is being gradually raised, when any of the builders are not occupied in the more immediately urgent works of a similar character in other parts of the mine.

Santa Cecilia.—This cross-cut has been driven 3½ varas in four weeks, and is now evidently entering the lower part of the upper body of the lode. The ground in the most advanced point strongly resembles the Malancho formation; and, in one of the bands of quartz that crosses working, some small specks of ore have been discovered.

San Miguel.—The communication, for the improvement of the ventilation, was opened on the 2d inst. The smoke of the shots fired, on each side of the point of communication, after the first small aperture had been made, having been carried into the working of Santo Toribio, caused a partial suffocation of 24 hours' duration, which has now been effectually remedied by closing the lateral outlets of the air in the extent of the level between the point of Dios Padre, where the air is introduced into the ventilating level, and the entrance to Santo Toribio. The beneficial results of the improved ventilation just acquired, cannot at once be stated, as only two days have elapsed since the event took place—let it suffice to say, on the present occasion, that, during these two days, all the various operations, within the working of Santo Toribio, have been carried on with as much facility as in any other part of the mine. In order to accelerate the egress of hot-air, naturally caused by an increased number of workmen, a line of clay pipes, well imbedded in stone and mortar, is being laid down on the floor of the level of Santo Toribio, which will convey a current of cool air into the working, and occasion the hot-air to seek an outlet, by rising against the roof of the level, whence it naturally flows to the upper communication with the shaft of San Miguel by a road that diverges from the ventilating level at no great distance from Santo Toribio.

In the month of Feb. a further increase of ore took place; in the week ending the 5th ult. the produce of picked ore was 460 cargoes, and in the week ending the 26th idem it reached 700 cargoes; and there is the same quantity this week as last, notwithstanding the interruption in the work mentioned above. The number of barmen have been gradually increased from 80 to 90 pairs by day, and an equal number by night. The end (Jesus) to the south-east of the roof is yielding a good quantity of excellent ore—the greater part of which is thrown down with the bar, and conveyed daily to the shaft in bags; an end to the north-west of the roof is being opened on ore, and the roof itself contains a considerable quantity of very good ore, of which only a small portion has hitherto been extracted. The pit opened in the end of Santo Toribio contains some rich threads and bunches in the bands that are being followed up. The end San Miguel has returned to a more prosperous state, inasmuch as some of the bands which had broken up into narrow ramifications have again become united, and now form a respectable body of ore, whilst the ground situated against the lower part of the end is also found productive. The extraction from the end Dolores is important, both as regards quantity and qua-

It is in each of the above-mentioned points more men than those actually at work may be advantageously employed, and two pits in the end, or level, of San Miguel, and one in the end of Dolores may be opened immediately. In a few days, and as soon as the little works consequent on the late communication shall have been concluded, steps will be taken to give every practicable impulse to the operations in all their bearings on the exterior. Some works of absolute necessity have presented themselves, in connection with the increased produce of ore.

Part of the patio, which hitherto has served as stables, is being put in order for the reception and dressing of ores. This is not an expensive operation, and is already far advanced towards its conclusion. On the side of the hill where the whims stand, it is necessary to raise a wall, to connect the two whims, and shut out all communication between the hill and the shaft, which is now entirely open. This is rather an expensive work, but is now unavoidable. The water in the lower part of the mine has fallen 24 varas since the last report. Another slight improvement has taken place in the sales on joint account with buscones. The increase of outlay is owing to the additional hands employed in Santo Toribio, and the general increase of people in San Miguel, besides the exterior works at present going forward. On the other hand, there is a very considerable increase of produce—so much so, that the hacienda of Barrera has now three weeks stock of ore on hand, and next week a part of the ore will be sent to the hacienda of Dolores. Nothing satisfactory can be stated respecting the trial of ordinary earths of Santo Toribio that is going on at Barrera; in four weeks only 3 lbs. of quicksilver have been thrown into the arrastre. The improvement in the ley of all the classes of ores from this working is such as to allow of the whole produce being sent to the hacienda, to be reduced in the ordinary way.

G. R. GLENNIE.

GWINEAR CONSOLS MINING COMPANY.

At a meeting of adventurers, held at the mine, the accounts were examined and passed, showing—Costs for Nov., Dec., Jan., and Feb., 4864. 7s. 2d.; merchants' bills, 2651. 18s. 7d.; balance due pursuer, end of Sept., 3651. 18s. 8d.—11181. 4s. 5d.—By calls, 6402.; copper ores sold, less dues, 1781. 1s. 10d.—18181. 1s. 10d.—showing balance against the adventurers of 3001. 2s. 7d. A call of 11. 10s. per share was made, and it was resolved—That defaulters be called upon to pay up all arrears of calls; that the meetings be held alternately in London and Cornwall; and that Capt. Hugh Stevens be paid, in future, 61. 6s. per month for his services.

At a meeting, at the offices in Three Kings-court, on the 10th inst., Mr. J. R. R. Michell, of Marazion, resigned the situation of pursuer; a committee of management was appointed, consisting of Messrs. E. M. Barrett, W. Law, J. Haywood, and R. Treddinick. It was resolved, that Mr. H. Cox be the future pursuer of the mine, including clerkship, at a salary of 51. 5s. per month; that Mr. Treddinick having resigned his situation as secretary, he be, in future, auditor of the accounts; that Mr. Michell's accounts be received and passed, subject to production of vouchers; and that the call of 80s., made on the 20th March, be confirmed.

WHEAL LAWRENCE MINING COMPANY.

At a meeting of adventurers, held at Briford, Devon, on the 18th inst., the accounts were examined and passed, showing—Costs and merchants' bills, 5541. 1s. 11d.—By cash paid in advance for labour, 1671. 14s. 9d.; balance at banker's and calls due, 3441.—5111. 14s. 9d.—leaving balance against the adventurers of 421. 6s. 4d.

The following report from Mr. H. James, mining engineer, was read:—

In handing to you a report of this mine, I beg to call your attention to the number of lodes and cross-courses which are known to be running through this extensive tract. There are eight east and west lodes already discovered—seven of them from 2 to 6 feet wide, and the other from 16 to 18 feet wide. There is also a canter lode of 3 feet wide, running about south-west and north-east, near the junction of this mine with Wheal Anna Maria. We have sunk our engine-shaft about 6 fathoms on one of the lodes, which we find about 4 feet wide, with two very regular walls, underlying north about 6 inches in a fathom. The matrix of this lode consists of peach, spar, capel, pryan, &c., with muddle, and good spots of yellow copper ore. I think it proper to name here that the engine-shaft in Wheal Anna Maria is sinking on a lode about 5 fathoms to the north of our engine-shaft; to this lode I would call your particular attention. We have not as yet seen it in our shaft; but in Wheal Anna Maria they have sunk 9 or 10 feet on it, within 20 feet of our bounds, and I consider that it is one of the kindest lodes I ever saw: it is 5 feet wide, with a gossan on its back of an exceedingly rich nature. The gossan holds down about 3 feet, and then comes in an almost solid lode of muddle, with the exception of spots of yellow copper ore—in fact, samples have been assayed from the bulk of the lode, and found to contain 3 per cent. for copper. I would here remark, that the reason of so little gossan being on the back is, that the spot where the lode has been opened on is close by the river, in a very deep valley—the hill on our side rising to upwards of 350 ft., and on Wheal Anna Maria side to upwards of 150 ft. The other lodes have been partially opened on, and they are all found to contain copper, muddle, soft spar, gossan, &c. The geological features of the sett cannot, in my opinion, be exceeded. The lodes are running through a strata of rich blue killas, perfectly congenial to mineral; and, about 20 fms. to the west, the elvan course crosses at an angle of 45°. The great cross-course passes through the sett, and intersects all our lodes about 150 fms. to the east of our present workings. From this cross-course, at four fathoms to the south, hundreds of tons of copper and lead have been taken, and it can be traced upwards of seven miles south from our mine. I think I am correct in stating, that all the best mines in Devon and Cornwall have made their most productive courses of ore about the cross-courses. The cross-course through our sett produces a great quantity of the black oxide of copper ore, which is more than the generality of cross-courses do. We have also the granite about half a mile to the south, dipping towards us; and, on going west, our lodes enter the granite, about one mile from the present workings.

WHEAL TRESCOLL MINING COMPANY.

A meeting was held at the mine, on Wednesday, the 19th instant, at which were present three gentlemen from Essex, directors of the company.

Mr. BEARD in the chair.

After some preliminary matters were arranged, it was resolved—That, as the mine was looking so exceedingly well, the pursuer be instructed to make arrangements forthwith, to put the mine in an efficient working state, by giving out conditions of contracts for erecting an engine, putting the mine down 20 fms. under adit, erecting three stamping-mills, and extending the main adit another 50 fms.—That tin be immediately sent to market, and the largest of the 22 lodes now discovered be immediately worked upon.—That, as the new system of letting all the works of the mine by contract seems to answer so well, everything in future to be publicly tendered for, and that the pursuer prepare proper plans and specifications forthwith for the same, but they do not pledge themselves to accept the lowest, or any other, tender.—That the directors wish to express to the pursuer, agents, and miners, their approval and entire satisfaction for the manner in which the works have been conducted the past two months, and that they hoped the managers of other mining companies might be induced to follow their example.

Capt. SPARGO said that, having now thoroughly inspected the mine, he was prepared, if they wished, to give a full and public report; but as the mine would, in a few short months, give her own report, a few words, on the present occasion, would, perhaps, be sufficient. The works on the mine were done in a miner-like manner, and he had never seen such a quantity of work done in so short a time, and for so small a sum of money. The sett contained, no doubt, an immense deposit of the finest tin, and it could very easily be obtained when they sunk below the present adit level. There were very few, if any, mines in this county which would show like this—22 fine lodes and branches in one level, of only 90 fms. in length, with nearly every one of them carrying tin, and some of them very rich. He was of opinion if the agents choose to set tribute pitches on the best lodes, that the mine might, even in this early stage, pay her own cost. He thought the contracting system, and the improvements about being brought forward by Mr. C. S. Richardson, would, when it became properly understood, tend to benefit mining generally.

Capt. TREVARTEN considered that, although the mine was rich enough in her present state, to put it beyond a doubt as to her being a good and profitable one, from what he had seen that day, there would be richer discoveries yet made in driving north; and that, if he might venture an opinion, he should say it was a kindly speculation, and that she would, some day, become one of the richest tin mines in the county.

Capt. KNIGHT, who had been underground to examine the D lode, expressed his opinion, that this one lode, and the branch around it for 10 fms., is sufficient alone to make a good mine; and that thousands of pounds' worth of tin will be raised from this lode, when the mine is down to the 48 fm. level.

Capt. WEBB said, so sure was he of the mine becoming a profitable speculation, that if the company would like to let him have all the tin he could get out of her above the 20 fm. level, he would erect a 40-inch cylinder, and put the mine down to the 30 fm. level, entirely at his own expense.

Several miners offered to take tribute pitches on the different lodes, varying from 8s. 4d. to 8s. 6d. in 11, and a person present, whose name is quite familiar with the public, made a direct offer to take the mine, and pay the company 25 per cent. on the amount of their whole outlay, either by the month, year, or whole term of the lease.

The PURSER said, the mine was open to any respectable mining agent, by applying to the captain on the mine; and that he thought gentlemen interested in mining property would profit much by a visit to these works. That he intended very shortly publishing a brief outline of his ideas on mines and mining men, taking Wheal Trescoll as a data; and, by a gratuitous and extensive circulation of them, might be the means of rendering a great benefit to capitalists and the working miner.

EAST POOL.—The statement of accounts to April 18, shows—By copper and tin sold, and other credits, for two months, 9701. 7s. 6d.; to costs for February and March, 8991. 19s. 7d.—showing profit, 701. 7s. 11d.—add call made in Feb., 61. per share, 7681. 7s. 11d.—Book in debt at last account, 8591. 15s. 10d.; in debt now, 211. 7s. 11d.; due to merchants and banker, 1181. 2s. 3d.; due from defaulters of call, 2011.

LISKEARD DUCHY CONSOLS.—At a special meeting, held at Liskeard, on the 13th inst., it was resolved, "That the mine be abandoned, the materials drawn up and sold, the accounts wound up and settled, and the affairs of the company finally brought to a close; and that the pursuer take legal steps to recover back calls."

ST. JOHN DEL REY MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I have just seen your report of the St. John del Rey Mining Company meeting on Friday last, in which I observe that no mention is made of several subjects of interest. Mr. Herring consented to have his name brought forward to fill the vacant seat at the board, on receiving a requisition signed by 30 shareholders, holding nearly 3000 shares in the company. It was too evident to many of Mr. Herring's supporters present at the meeting, that the majority of those who held up their hands for Mr. Herring were made shareholders for the occasion (many of them being persons in the employ of some of the directors, and others of Mr. Herring's party); that the question was put to the chairman, whether it was required to be a *bond fide* shareholder or not; or whether any person presenting 10 shares was qualified? The chairman referred to the company's solicitor, who decided the second question in the affirmative, upon which Mr. Herring's supporters (two of whom I know held between them 1000 shares) declined to contend an election so conducted; his proposer and seconder, amongst others, left the room without voting. I dare say this was legally correct—how far it was morally right I leave you and the world to judge. I saw one gentleman, who voted on 100 shares for Mr. Herring, tender a written power from a friend in Paris to vote on 50 shares—this was refused; these 150 shares thus gave 4 votes, according to the plan adopted on the other side, 15 votes could have been manufactured out of these shares.

Let us look calmly on both sides of the question—Mr. Herring was considered by one party a fit person to take a seat at the board, from the fact of his having superintended the company's affairs since its establishment in Brazil: no man with two ideas can doubt that local knowledge of the mine would be most useful to the board in London. A negative reason to support Mr. Herring in opposition to Mr. Illingworth, was the fact of the latter gentleman having been connected in business with the chairman; and that another former partner of his being a director, the election of Mr. Illingworth would give the chairman the entire control of the company's affairs, under the mantle of a board of five. On the other side, Mr. Illingworth's cause was advocated principally on the grounds that Mr. Herring's joining the board would bring differences and ruin, where all was now unanimity and profit. The personal claims of Mr. Illingworth being that he was auditor of the company, and when in Columbia had managed the affairs of the Columbian Mining Association. It will probably be admitted, that Mr. Illingworth's knowledge of mines in Columbia would not be so useful to the St. John del Rey Company, as Mr. Herring's local experience of 13 years at Morro Velho. We have then to discuss the question, why Mr. Herring's presence at the board should necessarily produce the evil results anticipated—here are five directors at the board—I cannot understand how the presence of one member out of five could (because he differed on some questions from his colleagues) produce in Brazil the terrible effects foreseen by the chairman of ruining the property by introducing the elements of discord. I know that Mr. Herring entertains, on some very material points, opinions opposed to those of the chairman; but, however right Mr. Herring might be, he could not, as director of the company, carry out his views in opposition to those of his brother directors; and, unless he had the power of bringing them to his way of thinking, it is childish to suppose that his being a director would have effect on the head mine agent, or any one else in Brazil. If Mr. Herring differed *to each* from his colleagues on matters of vital importance, the board would act in a fair and open manner by bringing the subject before a committee of shareholders. They would do well to adopt this measure now. There are daily precedents for this line of action; and if I correctly understand a remark which dropped from the gentleman who seconded Mr. Illingworth's nomination on Friday, he would agree with me as to the propriety of having a meeting of shareholders to investigate the affairs alluded to by the chairman. If Mr. Herring be wrong, prove him so; a public meeting for the election of a director is not the place to bring forward a question which required the board to meet three times, to merely dip into it. The only answers now given to everything in the shape of dissatisfaction at the present state of things are—look at the produce—look at the profits. I do not mean to infer by this that the mine of Morro Velho is not a good mine, and one which will not pay dividends for many years. I am sure that it is—but Mr. Herring, who has a considerable stake in the concern, considers that all is not right abroad; and from what I have heard and read, I agree with him. It is not extravagant to ask that a committee of shareholders should know what are the opinions of the men who have managed the mine from its commencement, upon a question of vital importance to the concern. The chairman said that Mr. Herring was in direct opposition to Mr. Keogh, and to Capt. Treloar—to the latter of whom he had, previous to leaving the mine, always given the highest character. In a proper place, before a fitting tribunal, which I consider a committee of shareholders to be, Mr. Herring would, no doubt, be ready to give reasons for his change of opinion; some of Mr. Keogh's measures are, I have no doubt, opposed to Mr. Herring's notions of right and wrong—such as firing the English workmen for non-attendance at church; and, on the other hand, inducing one of them to become a convert to the Roman Catholic faith, to enable him to be married according to the rites of that religion; forcing the oldest officer of the establishment to resign, because he could not get as much gold from poor as from rich stone; and locking up a black in the cell for three days and nights with nothing to eat, except what he obtained from the charity of the slaves, simply because he had been Mr. Herring's servant; I have no doubt that Mr. Herring would disapprove of these, and some other of Mr. Keogh's performances—but who will defend them? There is one subject more I cannot refrain from alluding to—that of the auditors; by the constitution of the company there should be two auditors—Mr. Illingworth's election, as director, leaves the company without one. A gentleman eminently qualified for this duty, who has been a shareholder in the company for more than 12 years, has intimated to the board his intention to offer himself at the next general annual meeting, as candidate for the auditorship; as this is not a political office, I hope the directors will agree to this gentleman being named as one of the two shareholders required by the laws of the company to audit its accounts. The simple fact is, that the company does not stand so well in public estimation as its intrinsic value merits; and as any infusion of new blood in the direction is now hopeless, I trust the board will not refuse to allow their accounts to be audited by a shareholder totally unconnected with any of their body. I will only add in conclusion, that I believe the authority upon which I founded my previous letters to be good. Mr. Schneider disbelieves their accuracy; I shall be happy to own myself wrong; if he can disprove (I might almost say deny) a single statement I have made; as to my want of candour in not laying before the board what I had to say, let me assure him, that my doing so would only have added further proof of the truth of an old proverb, "That he who is convinced against his will, is of the same opinion still."—A. SHAREHOLDER: City, April 17.

THE TUTWORK AND TRIBUTE QUESTION.

SIR,—I receive your Journals every Monday morning, and find them invariably interesting and instructive to me as a miner; but four or five letters which have recently appeared in your columns, in reference to the method of setting labour in mines, have afforded me particular interest and amusement; and, as a dispassionate and comparatively disinterested individual, I beg to offer a few remarks on them.—There was a magistrate's meeting held here yesterday; and after it was over, a gentleman asked of a ragged little boy, how many cases there had been? "One, Sur," said the boy. "Then, did they get or lose?" asked the gentleman. "Why, one guinea, and the other lost," replied the boy. So this, I presume, is the case with your correspondents, on the matter in question—one is right, and the other is wrong. I have read their letters over and over, and have carefully collected and weighed their respective merits in the balance of my poor mining judgment, and have decided in favour of the new system. I will not trouble you with the particulars of the manner in which I made this decision, &c., but merely make a few observations on both sides of the question. The advocates for the old method of setting labour appear to attach too much importance to, and entertain a wrong notion of, the meaning of the phrase, "captain's price" or "price in sight." In my opinion, it does not necessarily follow, that the "captain's price" is a true price; nor, indeed, according to my notion of its meaning, that the "captain's price" can scarcely ever be a true price in the old manner of working. I give you my reasons:—The "captain's price" is a remuneration according to the amount of wages allowed for the amount of labour which the captain estimates ought to be performed in a certain amount of time; but the question is—what is that amount of labour, or how does the agent arrive at his conclusions in reference to it? he will tell you, that he does it from analogical observation. But does it follow, although the captain's judgment be ever so correct, and the labourer's gettings from that judgment agree ever so nicely with the amount of wages allowed, that the "captain's price" is even then a true price. I contend that it cannot be; inasmuch as that the captain is not in a position, under the old system, to know what is the amount of labour that ought to be performed, as the labourer, knowing the restrictions in reference to his gettings, will satisfy himself with doing just the amount of labour that he had been accustomed to perform, without putting forth those energies that would be put forth in case of absolute necessity, and encouragement. This necessity shows itself in the new system, accompanied with encouragement, to all those who will so exert themselves. Under the old system, the labourer will (as I have before observed, knowing that there is a sort of limitation to his gettings), in case of his suddenly meeting with soft ground, for instance, dodge on, and frequently elude the utmost vigilance of the knowing captain. I have known scores of pitches and bargains set for, and anxiously taken at 4d. in 11, and 4d. per fathom; but what is the taker's motive? why, that he is certain that, so long as the pitch or bargain lasts, he is sure to have it at the "captain's price"; and that, although he is certain of working a month or two for nothing, he shall, by-and-by, so manoeuvre as to get enough to make him wages for the whole time, caring nothing about the loss of time which almost invariably follows such cases. But under the new system this cannot happen; as the labourer cannot calculate beyond the time present, and will not take his pitch, or bargain, without a present prospect of getting wages. Should this new system of setting

labour be generally adopted, I am quite confident that it would confer an advantage on both the labourer and adventurer, besides tending to make the miner an abler man.—JOHN RICHARDS: Perran Porth, Perranrathbe, April 25.

TUTWORK AND TRIBUTE.

SIR,—When we submitted a fact on tutwork and tribute, for the consideration of the parties then discussing a proposed mode of setting mining work, we had no intention of keeping up a protracted controversy on the subject. But we find we are called on by one of the writers, styling himself "Fair Play," to detach from him certain epithets advanced by Captain Seymour, Wheel Hooper, which we hinted at; we are quite pleased with this remark, and frankly acknowledge they were not his, but referred to Captain Seymour (whether "Fair Play," in doing this, is complimenting Captain Seymour, or otherwise, we leave others to judge); but in looking through his letter, we find him still against our views, in respect to the new mode of setting. In giving a true statement how the proposed system of setting answered with us, he seems to catch at our acknowledging some bargains set at one-fifth less than the captain's price, and that the tutworkmen's gettings average higher by this than the former mode of setting. He says, we unwittingly exhibited sad judgment. We are at a loss to know how he can make that out, as we have not mentioned what portions of the bargains were set at that rate; but we do say the tutwork gettings, on the whole, have increased; therefore, the labourers' time yielded them more money than before—we believe, by more exertion, on their part, to get it. "Fair Play," in common with others, holds for long stents, and a fair price in sight. So do we, under ordinary circumstances; the exceptions we shall not now discuss. We think he attaches too much importance to the usual phrase—captain's price—as if miners were incapable of judging the price of a fathom of ground, or for what they can break a ton of ore, as well as some agents. And, again, he says, that the men work with spirit when they have the captain's price. Do they not work with equal spirit when they have their own price, whether it be more or less than the captain's price? In the proposed mode of setting the takers have their own price, if that happens to be less than the agent's. A glance on the general mode of fixing the captain's price may not be out of place here. We will suppose three underground captains were about to fix a price on an end, which neither of them had any experimental acquaintance with before being driven; the price of one agent might be 9d. per fm., another 10d., the other 11d.—the average of these prices would be 10d., as the captain's price; but if there were only two of these agents, their average would either be 9d. 10s. 10d., or 10d. 10s. 10d.—the extreme difference is 1d.; but if one of these, having the price to fix, it would either be 9d. 10s. 10d., or 11d.—the extreme difference here is 2d., and in each case called the captain's price. We will also submit how the captain's price did originate, and it will be perceived quite from assumption. As an example, supposing a fathom of ground to drive being to be set to two men, the captain would fix his price, we presume, as follows:—He assumes, that two men can drive it in one week; he calculates their cost in doing so to be 20s.—so that their wages would be added (say) 30s.; together, 50s.—the captain's price for the fathom of ground; and, if accomplished in a week, as contemplated, this would be thought by the agent a proper price, and, of course, would set at the same rate again, which might be thought good judgment in the captain, and good labour done by the taker; but if admitting the ground continued precisely in appearance as when first set, they were occupied two weeks in driving the fathom, and in that time their outcost might amount to 30s., which would leave them but 20s., or 10s. each for their fortnight's work, of course, the agent would reprimand them, and charge them with having done poor labour; but from knowing them to be able miners, and having always found them regular as their work, might not feel justifiable in discharging them, and would, probably, try them again, with an advanced price. Again, if the said two men had accomplished this bargain in four days, they might be applauded as good labourers; but the captain might be under some apprehensions of having given too high a price, and, probably, offer less price next; but on fixing a fair tribute on a pitch, besides assuming the space the mineral occupies can be excavated in a given time, there must be an estimate of the quantity of mineral it produces, and also its value, &c. We think very powerful reasons may be adduced, to substantiate that the intelligent miner has a superior advantage, from having a full acquaintance with his pitch, or bargain, over the scrutinising captain, which we shall not at present explain. We do not wish to be understood to mean, that the captain generally goes into the particular detail, as we have mentioned, to fix his price on a pitch, or bargain; but he does it from comparing, in his ideas, that which he is about to prize with that which came under his observation, which he knew, from experience, the results. We submit the foregoing as correct, which may be termed premises. Now, examine what will be the conclusions, or inferences, therefrom; first, that all captains' prices are not alike, and, perhaps, the price offered as captain's price, strictly speaking, may not be the price of either of the captains; secondly, does not the dispatch, or otherwise, in reference to time, although no visible alteration appears, influence the succeeding price? We will also introduce what all agents are familiar with, that most new bargains are taken at 4d., in many instances, a month's stint—in doing which, each person's cost may amount to from 20s. to 30s., besides the loss of a month's wages; but in setting tribute, this 4d. system is carried to an astonishing extent. We are fully acquainted with one pitch, amongst an infinite number, set to six men, to raise, and make merchantable, above 400 tons of copper ore, for the sum of 4d., the performance of which occupied between two and three months, and the cost incurred in doing so was about 70s. I think, if fair wages be added to the 4d., makes 11s. 4d. per ton, which, we think, the motive of the parties thus taking?—is it not proper to infer, that they think to so manage as to get from the agent at some time, either from partiality, or misjudgment, more than a fair price for such bargain, or pitch, to pay them for their adventure?

Admitting that mine-agents are superior in judgment, and suggest the best method of working, and being more competent to judge the quantity of mineral that lodes, branches, &c., produce, and its value, than labourers—these same agents were labourers previously to their becoming such, otherwise their judgment are held questionable; there may be exceptions, but these generally act in a higher sphere than underground captains. The difference in the opinion between "Fair Play" and us may not be of any material consequence; we compliment the labouring miner, by allowing him his judgment as well as our own, on the work we have to set; and if we should happen to be in error, the labourer may correct us most satisfactorily to himself, by taking for less than the captain's price. We wish to be distinctly understood, that our intention in introducing this mode of setting was not to lessen the labourers' wages, but that proper exertion should be amply rewarded, and which we have had the satisfaction of experiencing by an increase of wages.

We beg to be brief in our reply to Captain Seymour's, of the 23rd inst. He seems to be capable of fixing wrong constructions on the plainest language; as he shows, from anything we have said, or can any such inference arise therefrom, as that we are obliged to trust to the judgment of labourers to put a price on the work we have to set; and we also read in the other sentence he quoted, some of the bargains in some instances. We shall not answer to his calling his names; he may please himself in doing so; it does not affect us in the slightest degree. We beg, Capt. Seymour will excuse us for our not accepting his challenge to meet him at Tavistock; we think all the useful information which he can supply us may be obtained nearer home; but if we should accidentally meet him, we hope to conduct ourselves in his presence in such a way, as will induce him to elevate his opinion of us.—AGENTS: Perran St. George Mines, St. Agnes, April 26.

MAP OF THE TAVISTOCK DISTRICT.

SIR,—I beg to inform "A Subscriber," that a map of this district, which I have had in hand for some time, will be published next month—of which an advertisement will be given in your Journal. This will supersede the necessity of "hand sketches," such as those referred to. I am also preparing a map, of a very accurate character, of the mines in Illogan and Camborne—having regretted that the map of Camborne, which I published, did not embrace the Illogan Mines, with which the Camborne Mines are so closely allied. I shall also, shortly, send you an announcement of my maps of the St. Austell and St. Just mining districts. I shall not cease my labours in this department (D. V.), until the mining world has the opportunity of purchasing maps of all the districts in Devon and Cornwall. You will recollect, that I published maps of the Gwennap and Newlyn Mines. I perceive, in your list of mines, the names of several which are defunct, and which, therefore, ought not to appear. I will try to send, for your next Journal, the names of that class, that they may be omitted in future.—R. SYMONS: Truro, April 27.

TAVISTOCK MINERAL DISTRICT.

SIR,—In the Journal of the 22d inst., a writer expresses a desire of obtaining a plan of this district; I know of none better than the Ordnance map, by Sir H. De la Beche. The wonderful quantities of metals and minerals which have been obtained from the very limited amount of real mining yet performed within this district, no doubt, surprises every one; and if this is the case, how much more would be the astonishment if a really scientific plan of operations had been commenced (say) 50 years ago. The writer of this article, about 30 years since, submitted a scheme for the development of the mineral riches on the eastern side of the River Tamar, to an agent of the greatest landholder of the neighbourhood, which obtained no favourable patronage, because at the time some of the feeble trials (or more properly scratchings), were not prosperous; and the reply was, the plan looks very well, but it will not do for us. Circumstances gave the writer an interest in one of the old mines on the west side of the Tamar, a few years after, and at a meeting of the proprietors he developed the same plan as applicable, or nearly so, to the proper mining of the western ground; but there were, then, questions connected with the duty lessee that prevented its being carried out.

About this time, a certain man of influence amongst miners stated, that the lodes in this neighbourhood would never yield large quantities of ore; and this opinion was held as important, though several mines were then productive—such as Wheal Friendship and others. The geological character of this locality is, no doubt, pretty well known to many of your readers. I had the pleasure and advantage of accompanying Sir H. De la Beche over a good deal of the ground, many years since, and recent experience has shown me, that my early opinions were founded on a good and substantial basis. According to my idea, the plans pursued are by far too contracted, and, consequently, too expensive—that the capital employed should be more concentrated, and brought to bear upon a given plan—that the amount of capital raised by any one company is far too small to accomplish the necessities of the case. Hence the practice of company after company, working and re-working, as it is called, the little mines, which more properly ought to be called *shade pits*, "knocking the bails," and setting them at work again, "like children's play"; and this has been the character of the proceedings during the last 40 years—and, in these proceedings, ample capital has been wasted; equal to have laid open, in a scientific manner, a large portion of the "mineral ground"; but it may be objected, the subdivisions of property is not favourable to any extensive scheme—such as is carried out in Saxony, and other German states, where the mines are worked by the governments; and here arises a question of great magnitude, respecting our vastly-increasing population, and the great number of men (seen miners) now employed on our lines of railway, which, after a few years, will be considerably diminished. I hold, that labour must be afforded for the people, and, consequently, the future is a subject which all legislatures are bound to look carefully after in regard to the employment of the masses. This being a question of social policy, more fitting for another paper, I shall leave

it, after saying, that I believe all governments must look more seriously at adjusting the laws regarding property and labour than has ever yet been the case. In returning to my subject, I shall briefly say, that it has been long my opinion, founded on extensive observation—not only of the mines of this locality, but of those of most of the counties of England and Wales, to which may be added those of France and the Channel Islands—that few districts afford more facilities for a handsome return for the outlay of capital than the one now under notice.

Turistock, 4 mo. 24.

JOHN PAULI,
Mining Engineer and Surveyor.

THE COPPER TRADE.

Sir,—The time seems to have arrived when the painful attention of the copper miners of Great Britain—nay, of the whole world—is drawn to the miserable price which their produce bears in the market. It is surprising that a body of men, so intelligent, so spirited, and so well able to protect themselves, as are the copper ore producers, connected with the Cornish, and other British mines, as well as those interested in the immensely rich concerns of Cuba, Chili, and South Australia, cannot arrange amongst themselves some plan by which a price for the article which they sell shall be brought to bear a fair and equitable proportion to that of the metallic copper which it yields. Are there none among the numerous body of producers sufficiently able and trustworthy to be entrusted with the management of the business of converting the produce of the miner into the merchantable article, and who would confine themselves solely to the smelting of copper ores, instead of undertaking iron and tin, besides numerous other matters, as the unlucky Miners' Company have done, and by which that company have lost their capital, credit, and I fear their very existence? It is perfectly well known, that a profit of 20% to 30% per ton upon the converting ore into copper metal is now realized, and has been made by all the great smelting-houses for the last three or four years; and that, owing to a close and rigorous and most odious monopoly—or "regulations of their trade"—the profits upon the amount of capital employed for it which inordinate, whilst the miner has been paid the least possible amount for it which the buyers deem likely that he will accept, without an outbreak of general complaint, or measures for his self-protection. The rules which govern this body of monopolists have oozed out—they are known to be enforced by fear of the severest penalties, and nothing but this fear would have held the body together.

Copper Miners! you are degraded by submission to such a system, and your mines are going rapidly to destruction under its influence; and, unless measures be taken to enable you to convert the produce of your mines into metallic copper, either at works of your own, or by paying parties for returning the ore for you, at scales of prices to be agreed upon, or in some manner which shall ensure to you a fair price for the quantity of copper in the ore you produce, wide spread ruin will be apparent. Matters cannot go on as they are—many of the largest mines are now losing money; several of the very richest make little profits, and yet the converters of the ore are sharing amongst them gains out of all proportion to the capital which they employ or possess. An united effort to adopt some fairer system should now be made, or the copper miners of the world must submit to abandon the hope of any better state of things.

April 27.

ANTI-MONOPOLIST.

ACCIDENTS IN COAL MINES—FOURDRINIER'S APPARATUS.

Sir,—There is not a week passes, but your Journal, as well as the local papers, contain the most harrowing details of frightful, and, in some cases, lingering deaths from the breaking of the ropes, or chains, by which the men are let down the shafts of coal mines, or brought to surface; and it is well known by all acquainted with colliery practice, that not one-quarter of the accidents which really happen are allowed to meet the public eye, but are hushed up by parties interested. Some time since, you gave a description of an apparatus patented by a Mr. Fourdrinier, for arresting the corve in its descent, immediately on the breaking of the rope by which it is suspended; and as I attach great importance to the invention, and consider it will be greatly conducive to the preservation of life in collieries, I should feel greatly obliged by you, or the patentee, informing me, through your columns, whether the safety apparatus is in operation at any one, or more, pits, and if it has been found successful in practice.—A COALWORKER: *Wrington, April 56.*

WEST WHEEL JEWEL MINING COMPANY.

Sir,—In looking over the accounts of this company, it cannot fail to strike the most casual observer, that an exorbitant and very unnecessary charge is made for London management, which, in my humble opinion, might be done away with, most advantageously to the adventurers, as all the work has to be done in Cornwall—everything, both underground and at surface, being conducted by the committee of management, who are the responsible and acting power, under whose government every operation is performed, and every want provided for; even the banking account is kept at Truro, so that the board in London can have but an imaginary responsibility—a mere nominal duty to perform, which may easily be dispensed with, and which will prove a valuable saving to the company hereafter.

I find that the cost is much the same, for similar duties, in the Great Consolidated Mines, the Treasurers, Carn Brea, and many other concerns, of greater magnitude than ours is at present. I consider a reduction should be made of at least 200% per annum, and which ought to commence immediately; I, therefore, call the attention of my brother shareholders to the annual meeting, to be held on Monday week, the 8th of May next. On referring to the Deed of Settlement, I find provision is made for three directors in London, one of whom goes out on the 6th of May, but is eligible for re-election. I do trust, that on no account will this vacancy be filled up, but rather that the whole clause be rescinded; and should a majority be of a different opinion, I beg to call their attention to the fact, that the committee have for two years acted gratuitously, and if they have done so to the satisfaction of the shareholders, directors in London can be no longer requisite; or, if they must be kept in office, they should at least place themselves on a fair footing with the committee, whose duties are far more arduous. In fact, the whole duty in London may be performed by one responsible individual, whether under the denomination of director, secretary, or clerk.—A SHAREHOLDER: *Redruth, April 26.*

NORTH ROSKEAR MINING COMPANY.

Sir,—I beg to inform you, that we have made a new discovery in Wheel Croft part of the mine; we cannot as yet say much about it, but think it will prove very productive. I write this to put you on your guard, that you may not be taken in by the brokers; you shall hear more about it in a short time.

North Roskear, April 26. (For T. Hutchinson.) H. A. VIVIAN.
[We have been favoured with the foregoing letter, which has been addressed by the purser of North Roskear to the adventurers, in which that gentleman informs them of an important discovery in the mine. We are pleased in submitting it to our readers, as proving the correct conduct of Mr. Hutchinson towards those with whom he is connected.]

HALLENBEAGLE MINE.

Sir,—As it is now, I believe, between two and three years since this mine stopped working, and the materials sold for a considerable sum of money, will you allow me to ask, through your columns, (for I can get no information in Cornwall, except that the money is in the hands of the Messrs. Harvey,) why it is not divided among the shareholders? Our losses are considerable, and it is rather too bad to be kept out of what little may be coming to us, without a word of explanation.—A SHAREHOLDER: *London, April 29.*

LAMHEROOF MINE.

Sir,—I have been a constant subscriber to your Journal, my object being to obtain information from week to week, as relates to the mines in which I have embarked my money; and it is with surprise that I find you do not report on more than one mine in which I am concerned. I now only name the Lamheroof, which I understand to be in the neighbourhood of Wheal Maria. Now it will be remembered by yourself, no doubt, and your readers generally, that this mine held out great promises. When I last attended the meeting, there were certainly some splendid reports and specimens, which, I must confess, to me appeared to be very excellent and conclusive as to the profits which we might fairly calculate upon; but I am sorry to say, if I may rely upon the report of a party in whom I place much confidence, the mine is at this moment, what they call in Cornwall, "knacked;" or, in other words, there are only two "pares" of men at work, at the same time that we are at the expense of engine, the agency of J. Tabb, Esq., and the London expenses.

I think, Sir, it is only your duty to expose these circumstances—so that those interested may call a meeting, and inquire into matters; and, perhaps, as Mr. Davey, one of the committee, is now in the neighbourhood, he would be kind enough to inquire for himself, and render information to the unfortunate shareholders, of whom I beg to subscribe myself, with thanks for your zeal and courtesy, at all times evinced, as—ONE: *Coggeshall, April 26.*

[From the Plymouth Journal.]

WHEAL FRANCO.—In sinking a mine, about 20 fms. west of the engine-shaft, a course of ore has been met with, worth from 14s. to 16s. per ton. This is entirely new ground, and is a very important discovery.

WHEAL CALVECK.—Here the ground has undergone a favourable change—the kilas adjoining the lode being much softer, and more congenial than it has been, and the lode has increased in size.

WHEAL CALVECK.—In the new shaft very fine rocks of ore have been raised.

WHEAL TON AND VETTER MINES.—We understand that this mine has been inspected by Capt. S. Seaborn, whose report we hope shortly to give.

HOBBS HILL MINE.—At a meeting of adventurers, held at the mine, on the 12th inst., the purser's accounts were allowed, and a call of 11 per share made.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending April 22 was 17,546; amount of money, £73 2s. 2d.

PRODUCE OF THE PRINCIPAL CORNISH COPPER MINES, FOR THE QUARTER ENDING MARCH 24, 1848.

Mines.	No. Tonnages.	Tons.	Amount.
Devon Great Consols	3	3626	£2453 18 0
Carn Brea	3	3534	1717 12 6
Par Consols	3	2114	1612 16 6
United Mines	3	3204	1406 15 6
Consolidated Mines	3	3059	1160 16 6
South Caradon	2	1523	927 8 0
Wheals Prosper and Friendship	2	1362	846 12 6
Fowey Consols	2	1557	835 5 6
North Roskear	2	1588	819 19 6
South Wheal Francis	2	790	664 11 6
Wheal Seton	2	1158	634 14 0
West Caradon	2	864	560 2 6
Tincroft	2	1117	384 2 0
North Pool	2	834	370 4 0
East Wh. Croft, Duddance, & Longclose	2	502	271 15 0
Stray Park and Camborne Vein	2	561	269 8 0
Levant	2	369	246 12 0
Bedford United	2	348	232 2 0
Treasurer	2	642	230 2 0
South Wheal Basset	2	332	230 1 0
Poldice	2	480	222 7 0
Trevelick Consols	2	413	220 7 6
Trevelick and Barrier	2	381	214 16 0
Creagbrows	2	445	197 12 6
Wheal Comfort	2	656	187 3 0
South Roskear and Wheal Chance	2	305	174 11 0
Wheal Jewel	2	314	171 11 6
West Wheal Treasury	2	255	169 0 0
Alfred Consols	2	469	136 3 6
Wheal Bucketts	2	305	131 5 0
Dolcoath	2	261	126 12 0
Condurow	2	288	102 18 0
Perran St. George and Bolenna	2	309	105 5 0
North Wheal Basset	2	172	94 17 6
Wheal Agar	2	189	85 9 6
Marke Valley	2	261	81 2 0
Wheal Sisters	2	126	75 12 0
Graham and St. Aubyn	2	175	74 16 0
Wheal Tremayne	2	159	72 13 6
Wheal Ellen	2	107	65 12 0
South Wheal Fortane	2	86	62 12 0
East Pool	2	61	59 9 6
Holmehush	2	98	54 7 0
Tywarhale	2	141	50 14 0
West Wheal Jewel	2	164	47 8 0
Wheal Gurney	2	85	44 2 6
Trethellan	2	166	44 2 6
South Tolgus	2	76	39 6 0
Wheal Rodney and West Prosper	2	110	38 14 0
Wheal Tryphena	2	19	35 5 6
Wheal Henry	2	58	34 6 6
Andrew and Nangles	2	78	35 14 0
Wheal Harriet	2	135	32 14 6
East Downs	2	53	31 10 6
Gonamena	2	35	31 12 6
Wheal Maiden	2	75	30 6 0
Great Mitchell Consols	2	109	29 14 0
West Trevelick	2	97	29 19 6
Wheal Mary	2	50	29 5 6
Charlestown United	2	30	27 2 6
Lanivet Consols	2	63	24 11 6
Wheal Jane	2	77	23 6 0
Gwinar Consols	2	110	20 1 0
Wheal Clifford	2	56	19 7 0
Wheal Gorland	2	34	17 7 0
Wheal Williams	2	31	15 5 0
Wheal Bellation	2	31	13 14 0
Cook's Kitchen	2	27	13 12 0
Wellington Mines	2	29	13 19 0
West Wheal Providence	2	15	12 3 0
Budnick	2	22	10 15 0
Lewis	2	16	9 16 0
Wheal Bury	2	34	9 12 0
Wheal Brewer	2	47	9 15 6
East Seton	2	21	8 9 6
North Downs	2	25	8 9 6
Wheal Vyvyan	2	15	7 8 6
Wheal Unity Wood	2	22	7 16 6
South Towan	2	20	7 3 6
Tamar	2	13	6 8 0
Carn Perran	2	16	6 5 0
Wheal Ruby	2	13	5 17 0
United Hills	2	20	5 2 0
Wheal Vor	2	8	4 12 0
Wheal Union	2	7	4 2 6
Providence Mines	2	32	4 16 0
Trevelick	2	17	3 17 0
St. Austell Consols	2	12	3 3 0
Pembroke Mines	2	1	5 6 0
Total		Tons 35,662	£196,212 15 6

MINING IN AUSTRALIA.

By papers received from Perth, Western Australia, on Tuesday last, we learn that the mining capabilities of that part of the Australian continent were being developed. Some excellent specimens of copper ore had been recently discovered in the land of a Mr. Hardey, in the district of York. The specimen resembled that of South Australia, and contained a large quantity of carbonate of copper. The Western Australian Mining Company had held a meeting; the report of the directors was very satisfactory, affording evidence of the favourable progression of the undertaking, which is at present only in its infancy. The works had been commenced, and the report of the engineer afforded every hope of success. The quality of the ore improved as the workmen progressed downwards. The first ton of emery ore, from Mr. Duffield's land, had been shipped for London.

The whole colony appears considerably elated by the success which has attended the trade in sandal-wood, a project of very recent date. The profits arising from its export to China were such as to make every one eager to participate in the trade. Parties were exploring the whole country for sandal-wood trees, and large quantities were being sent in. The shipment to Singapore had met a ready market at \$6 per cwt. The last cargo, however, arriving at the wrong period of the year, had realised half a dollar loss. sanguine expectations prevailed that the trade would be brisk for years to come. There was every prospect also of a good trade being opened for another product of the colony—raspberry jam-wood. A sample had been sent to China for trial, in the expectation that the Chinese workmen might like it for cabinet and fancy work, and the result appears to have answered the hopes of the projector. If the new branch of the trade be found remunerative, of which there was no doubt, and the consumption became large, the prosperity and wealth of the colony would be considerably augmented, as the jam-wood grows in much greater abundance than the sandal-wood, the proportion being as 100 of the former to 1 of the latter.

Further accounts from South Australia have likewise come to hand, by which additional particulars are furnished respecting the mineral prospects of that part. The Bon-Accord Mine, adjoining the Barra Barra, was being worked by a small party from the latter, who had succeeded in cutting a most promising and productive lode at a moderate depth, and sanguine expectations were entertained that something brilliant would be attained at a little further depth. The discovery had caused much excitement, and the result of the operations of the miners was most anxiously and impatiently waited for. A silver-lead lode had been cut in the new level at the Glen Osmond Mine, which proved large and productive, the estimate of its value being from 1000 to 1200 per fathom, with a great probability of improvement in every respect as the work progressed. The Poonawarta Mine, comprising 640 acres, had been a second time sold, and fetched 10000. A land society had been formed at Adelaide, to enable working men and mechanics, by combining their means, to become possessors of freehold property. The price of the Barra Barra mining shares in the colony is quoted at 15s.; Mount Remarkable, 25s.; and Princess Royal, 60s. per share.

We have since received papers from the colony, extending to the 12th Jan.; by which we learn, that the Government sales of mineral lands had been recommenced, and would, it was supposed, be continued at regular intervals. The quantity of land sold was 1624 acres, in sections, which produced 67000, giving an average of about 6s. per acre. One section alone, of only 76 acres, produced 31000, or at the rate of 42s. per acre—this portion, however, contained very valuable ores. The Royal Mining Company obtained a rich mineral section of 53 acres for 10100, being at the rate of 19s. per acre. The great lode of copper ore lately discovered on the eastern shore of the Gulf of St. Vincent, was put up for sale on a 14 years' lease at 36s. or 12s. per acre, and realised 7000. This section was the most valuable lot of all, the quality and quantity of the ore having been fully ascertained. These sales had given increased animation to the mining predilections of the colonists. Several new companies were being formed for the purpose of working the several mines. The prospects of the Royal Mining Company are described as having very much improved. The workings north of the Kapunda were being vigorously proceeded with, and it was believed that one of the main lodes of the Kapunda had been struck. The company have purchased a very promising section near the Barossa, upon which a fine lode of blue carbonate is said to have been found. The Para Company had purchased the section previously spoken of for 31000, announced to contain one of the largest lodes yet discovered in the colony. The Enterprise Company had purchased several sections in the Kapunda district, upon all of which, it is reported, copper ore had been found.

Current Prices of Stocks, Shares, & Metals.

MINES.—There has been a slight improvement in the mining share market during the week; but we do not find much animation among buyers arising, no doubt, from the depressed standard for copper ore. Few others than paying copper mines appear to be inquired for, and even those at very low prices. Lead mines will, no doubt, become the favourites of the day; and, from the improvements in some of these, we are inclined to think that a good deal of business will be done in them in preference to the others.

The extension of operations and important discoveries in Devon Great Consols eastward have caused inquiries to increase, but we are not advised of many transactions; still they maintain their quotation, and negotiations are the consequence. The reported improvements in Herodsfoot and Carvington Hills have created buyers at advanced prices.

Some inquiries have also been made for shares in West Wheal Treasury, South Basset, South Trelawny, West Seton, &c.

Shares in the following mines have changed hands since our last—viz.: Devon Great Consols, West Treasury, South Basset, Herodsfoot, North Wheal Basset, South Trelawny, Callington, West Wheal Buller, Trebarn, South Wheal Betsey, East Tamar, Mary Ann, East Wheal Friendship, Devon and Courtenay, &c.

We have had another fall in the standard for copper ore; this we anticipated, and also fear that the present price is not the lowest we shall see. The monopoly of smelters, in making their own market, very naturally induces them to take advantage of the present very confused position of foreign commercial affairs, as well as the disturbed state of continental Europe. They may point to the monetary position of India and importing European countries, and represent the insecurity of payment for their copper—they may refer to their increase of stock in their warehouses, and guard against the risk of loss by exportation—during the period of a few passing clouds, they may crush native industry and suspend mines. But it appears to us, that the withholding from transactions with foreign markets upon customary terms, and the accumulation of stock (if it be so), at ruinous consequences to British mining, is for the more rapid augmentation of private or individual wealth. If there be a want of the article in those countries (of which there is no doubt), and delay increases the exigencies of the case, there must, and will, be means found for prompt or cash payments. Hence, we look upon the present standard as the means under the present unsatisfactory position of our foreign and domestic exchanges, to obtain the raw material at destructive prices to the miner, for certain self-aggrandisement. For we know the supply, if suspended to the extent represented, cannot be for any lengthened period.

It has been suggested to us, that there is not sufficient capital employed for so extensive a business as the smelting of copper ore is now become; and that the time has arrived when public attention should be energetically directed to the fact, that six firms have nearly the entirety of the copper smelting of the world in their hands; and three of these companies, as the Ticketing Paper will show, are of a very limited character—thereby rendering the monopoly more complete; whilst immense wealth is realised by smelting, the capital of the enterprising adventurer is subjected to being sacrificed by the great reduction made in the price fixed for copper ore. We must confess we are of opinion, that there is too much truth in the foregoing remarks, and that a great alteration must soon be made; nor do we conceive it fair that the mining interest should always sustain all the loss at periods of mercantile depression; and the fact, that the smelters have reduced the standard to 84s., with a produce of 9s., must have the effect of arousing the spirits of the adventurers, both in our foreign and British mines; and, by forming additional smelting companies, determine that this baneful monopoly shall exist no longer; and we are satisfied that such firms, coming now into the market on free and independent principles, would meet as they merit every assistance and co-operation from the mining adventurers of the United Kingdom.

In foreign mines there has been a lively inquiry for St. John del Reys, in which several transactions have taken place. In Kinzigthals, Australians, and Asturias, some business has been done, but not to any extent. The ship *Wellesley* arrived in the docks from the East Indies, having on freight 24 cases of specie, 15 of which are consigned to two firms in the metropolis, eight to three individual parties, and one addressed to order. The *Melbourne*, from Port Philip, has brought 70 bags of silver, and also 1827 bags of copper ore. The American line of packet-ship, from New York, with one box of specie. The ship *Barham*, from the East Indies, three boxes of specie, individually addressed, and one box, consigned to order. Arrived at Southampton, on Sunday, the 23d, the Royal Mail Company's steam-ship *Thames*, with the usual West India mail, bringing a valuable freight, consisting of \$11,000 in American gold coins, \$46,492 in silver, on merchants' account, 3700 in British coin, \$26,981 in gold dust, a box of pearls, and general merchandise. The Peninsular and Oriental Company's steam-ship *Tiger* arrived at Southampton, on Wednesday, with 22 packages of specie; also a parcel of diamonds, and general cargo.

RAILWAYS.—On Monday, there was no change in the share market—prices remaining much the same as on the previous Saturday. On Wednesday, the tone was considerably improved; and an advance took place of 1s. per share on favourite lines. Little business was done on Wednesday, and the market was very dull, without much reduction in prices. Foreign shares were offered at lower rates. At the close of the week, business became more brisk; the prices obtained equalled the highest of the past or previous week. French lines had again improved.

HULL, THURSDAY.—During the past week there has not been any material alteration in the share market—prices continue about the same, with a very limited demand. The accounts from London and the provincial markets, received to-day, present a rather more cheerful appearance.

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rwy.	Present actual cost.	Price per share	Last Div.	Traffic Returns.	
					1848	1847
Birkenhead, Lancashire, & Chesh.	15	997,284	37	s. p. c.	£926	642
Colindale	130	3,594,470	29	—	3533	—
Dublin and Drogheda	35	754,529	62	—	804	886
Dublin and Kingstown	7	473,282	—	7	792	797
Dundee, Perth, & Aberdeen Junc.	47	415,073	26	8	855	307
East Anglian (Lynn to Ely)	54	1,062,742	61	—	465	—
East Lancashire	24	1,733,915	18	—	1007	628
Eastern Counties	21	8,359,709	13	4	13083	10417
Eastern Union	51	979,926	20	—	1015	1059
Edinburgh and Glasgow	53	2,375,745	42	6	3072	3404
Edinburgh and Northern	29	933,207	14	—	1138	—
Glasgow, Paisley, and Ayr	64	2,097,321	70	7	1926	2303
Glasgow, Paisley, & Greenock	23	845,534	15	4	947	1003
Gt. Southern & Western, Ireland	110	1,876,326	21	—	2302	1424
Great Western	281	10,970,636	69	7	15363	21186
Kendal and Windermere	70	1,069,888	23	4	133	—
Lancaster and Carlisle	70	1,395,193	43	4	1678	1166
Lancashire and Yorkshire	124	7,591,618	86	7	9233	8602
London and North Western	428	21,513,354	128	8	37410	40415
London and Blackwall	4	1,241,061	41	12	859	392
London, Brighton, & South Coast	161	6,087,822	30	4	9036	7136
London and South-Western	189	6,264,164	44	8	8267	7618
Londonderry and Enniskillen	104	145,135	16	—	160	—
Manchester, Sheffield, & L. Incolnsh.	26	2,336,624	80	5	2225	5969
Marquand and Carlisle	28	440,851	40	3	455	610
Midland Company	402	9,833,192	97	7	18907	19752
Midland Great Western (Irish)	36	583,776	10	—	1018	—
Newcastle and Carlisle	66	1,184,080	105	6	1887	2160
Norfolk	81	1,624,150	62	5	2119	1815
North British	78	2,890,748	20	8	1883	1457
Shrewsbury and Chester	17	780,272	74	0	609	350
South Devon	29	1,608,071	20	5	743	844
South-Eastern	165	6,932,181	22	6	7894	7462
Staff Vale	38	820,056	—	8	1782	1283
Stratford	36	646,911	52	6	968	947
Strathaven Junction	12	147,093	—	6	172	—
Trk. Newcastle, & Berwick	162	4,466,526	30	9	10607	8542
Trk. and N. Dublin	32	1,888,287	64	10	8000	8349

NOTICES TO CORRESPONDENTS.

It will at all times be much trouble, and frequently considerable delay, if communications are simply directed—
To THE EDITOR.

Mining Journal Office,
26, FLEET-STREET, LONDON.

Also, to avoid trouble, Post-Office Orders should always be made payable to WILLIAM SALMON MARSHALL, as acting for the proprietors.

* * We should feel obliged to all persons, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal with as little delay as possible.

Mr. Radley, Ch.E.—We are at all times happy in publishing the communications of our correspondents; indeed, anxious to court their comments on the inventions and scientific questions of the day, but our friend, Mr. Radley, so far outstays all conventional rules—nay, common prudence, or the requisite courtesy, in his general allusions—that we feel bound to reject his lucubrations; at least, until he will so far amend his style, as to render his letters less objectionable, not to say, insulting.

The continuation of Professor Anstie's Lectures is unavoidably postponed until our next.

The series of papers, in course of publication, on the Metallurgical Treatment of Ores, are written by Mr. John Mitchell, the assayer, of Hawley-road, Kentish Town.

Our report of the Anniversary Festival of the Iron, Hardware, and Metal Trades' Pension Society, at the London Tavern, on Wednesday last, is necessarily postponed until next week's Journal.

We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses; not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

The MINING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

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A Glossary of Mining and Smelting Terms,

USED IN ENGLISH AND FOREIGN MINING DISTRICTS.

Published at the office of the Mining Journal, 26, Fleet-street, London; and may be had of John Weale, 59, High Holborn; and through all booksellers in town and country.

PURE IRON.—ERRATA.—SIR: Please to correct the following errata in my letter of last week: para. 3, line 8, for 15 per cent., read 15 per cent.; para. 4, line 4th from bottom, for minimum, read maximum; and in line 6th from bottom, for fusibility and malleability, both decrease, and fusibility increases and the malleability diminishes.—ROBERT MUGGER: Colford, April 24.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, APRIL 29, 1848.

An unusual press of matter, since the expiration of the first quarter of 1848, has prevented the insertion of our usual summary of the produce of the principal copper mines of Cornwall, which will be found in another column of this day's impression. From this return, it will be found that Devon Great Consols and Carn Brea still keep the lead, although, in both cases, there has been a considerable falling off, as compared with the previous quarter—in the former, of 367 tons, and 1947t.; and in the latter, 297 tons, and 2609t. A decrease has also taken place in some other of the large mines, as follows:—Great Consols, 309 tons, and 1656t.; Fowey Consols, 20 tons, 845t.; Wheal Seton, 428 tons, 2724t.; North Pool, 848 tons, 3681t.; West Caradon, 50 tons, 493t.; Tincroft, 463 tons, 1637t.; Tresavean, 394 tons, 2288t.; Stray Park and Camborne Vein, 436 tons, 1385t. An increase in the following six large mines has taken place:—Great United, 168 tons, 600t.; Par Consols, 364 tons, 3482t.; Wheals Prosper and Friendship, 111 tons, 304t.; South Caradon, 446 tons, 2058t.; South Wheal Francis, 108 tons, 1295t.; and North Roskear, 664 tons, 3108t. Decreased returns, however, have in general predominated; and the total falling off of the Cornish ticketing papers for the first quarter of the present year, as compared with the last of 1847, as stated in a previous Number, is 5287 tons, and in money 25,189t.

It is with much gratification we call attention to the improved prospects of nearly all the mines in Mexico in which English capital is embarked; as, after so many years of harassing suspense to the adventurers, and during which some millions sterling have been sunk, it is a singular coincidence, that one mail should bring the pleasing intelligence of unlooked-for and sudden improvement, with every prospect of continuance, of the mines of the three most important companies—United Mexican, Bolanos, and Real del Monte.

United Mexican Mines are so much improved, that the company will be obliged to have back two haciendas, which they had let off some time since for want of ore. Their profit for February last was about \$20,000, and when they get back their two haciendas, it is expected their profits will be \$50,000 per month; they have paid off about 145,000t. of the debt, and have in hand here and in Mexico nearly 30,000t.; they fully expect to be shortly in possession of a richer mine near Rayas than any ever held in Mexico by Englishmen.

Real del Monte Mines are looking well for future working, as nearly all the points from which they have been getting ore are very much improving.

At Bolanos, as soon as the engine is set to work, which they are now erecting on El Bote Mine, the extraction of ore will be immense, and their profits are expected to be from \$3000 to \$5000 per month.

Mexican mining shareholders are highly gratified with these accounts; and as the war is over, and quicksilver much reduced in price, they look to the future with high expectations, and entertain sanguine hopes, that in a few months, they shall be in receipt of good dividends.

The vote come to by the House of Commons on Monday week, on which we made some passing remarks in our last Number, has permanently settled the long-suspended question of the duties on foreign copper ores; the mere circumstance of an adjustment is, of itself, an advantage, as disencumbering the copper ore trade of those elements of uncertainty, and of merely fortuitous speculation, with which the floating character of so important an alternative has now, for some years, surrounded it. It is quite evident that Parliament, although careful of the public revenue, felt that the income arising from these duties was annually diminishing—in fact, every quarter getting less; that they were not maintainable on principle; and that, from the strong case made against them by the manufacturers, as a practical grievance, their course, under the circumstances, was very clearly prescribed. It was left, in short, without a legislative option; and the impost was cancelled, with a view, among other things, to the ultimate improvement of the revenue. If foreign ores, under the new regulations, come in in much increased quantities, it will be for the purpose of smelting; the great smelting companies will feel the first advantages of the change; and, as it will naturally attract public attention to their measures, as merchant companies, we may hope to realise some improvement by the stronger light in which their movements are seen. The owners of mining property will be benefited by the increased demand for their produce, for mixing with an enlarged importation of foreign ores; as it is clear, the poorer ores of Cuba and Chili, on the shipment of which so much has been written by the upholders of the duty, will never pay the cost of freightage. These duties have operated most injuriously to the copper trade, as well as to the shipping interest; and the erection of smelting-works in countries where they either never before existed, or, at all events, on a very limited scale, reduced the number of smelting furnaces in Swansea and its neighbourhood, from nearly 700 to less than 400 since 1842—while the demand for metallic copper in the markets of the world had considerably increased. The importation of copper ore into Hamburg alone, for smelting, increased from 60,000 tons, in 1845, to 407,000, in 1847.

These facts speak for themselves; and, we trust, a greatly enlarged

activity in our mining districts, and consequent addition to the earnings and comforts of the miner, and profit to the adventurer, will dissipate the illusion that the duties on foreign copper ore were a protection to our mining industry. The advantages which the coal districts of South Wales will derive from the abolition of the duty, particularly Swansea and its neighbourhood, are incalculable.

The annual general meeting of shareholders in the BLAENAVON IRON COMPANY was held yesterday, at the offices, Pancras-lane, City, when our reporter attended in due course, but was, as we fully expected, refused admission. Having, however, taken some pains to learn the true position and prospects of the company, and to ascertain the cause of its present depressed state, we can arrive at only one conclusion, which is, that something woefully wrong has guided the management; and that the exclusion of reporters, for the last four or five years, has been caused by a fear of the directors' proceedings being exposed to the public eye. Evidently, "there's something rotten in the state of—" Blaenavon. After four years of unprecedented prosperity in the iron trade, it is found, that the company have made no profits; but, on the contrary, the concern is labouring under pecuniary difficulties of very considerable weight. The shareholders have recently received circulars, stating that a call has been made of 10t. per share, payable in five years, at 2t. per share per annum; and that, if not responded to, the works must stop, and be sold, with the further gratifying information, that every shareholder is liable for the debts of the concern to the full extent of his private property. On Monday last, a meeting of the local holders of shares, called by circular, took place at Abergaveuny, when about one-fourth of the total number of shares were represented. Great dissatisfaction was manifested towards the conduct of the directors of the company; a strong disposition was evinced in favour of winding up the affairs at once, in preference to continuing with a declining trade and prices, and the almost certainty of being called on for a further advance, in addition to the 10t. per share now called for, at no very distant date after the expiration of the five years. Finally, a deputation of three gentlemen—one of them holding 600 shares—was deputed to attend the meeting in London, for the purpose of representing the others, and with power to take such steps as the emergency of the case may require. From long experience we have found, that in nine cases out of ten, where the meetings of public companies are made hole and corner ones, by the exclusion of the press, there is something egregiously wrong in the proceedings of the management; and we advise the shareholders to institute a thorough investigation of their affairs—to call upon the executive to admit an effusion of new blood into the direction, and to grapple boldly with the present drooping and profitless appearance of things, take the management into their own hands, and if, with well directed and judicious economy, they still find the concern a losing one, take immediate measures for winding up the concern, and disposing of the property. This circular of the directors is almost an avowment that they have no hope of success; and a shareholder to the extent above mentioned will have to pay 6000t. in five years, with the pleasing prospect—of what? being again called upon to support an expensive establishment, and conducted, as it must hitherto have been, on a most unbusiness-like and ruinous system.

The railway interests of the county of Cornwall have, for some time past, been in a lamentable state of collapse. The miscarriage of the several lines projected for the county is, upon the whole, much more attributable to the general blight which has fallen upon this species of undertaking generally, than to any connate vices or prominent defects in the works themselves, as transit lines for the districts they penetrate—not that railway defects and vices are, in any case, strangers to some of them. A principal one in the group, indeed, is known to have its course so thickly strewn with them, that the wonder is in the county, and out of it, how ever it could have won the sanction of Parliament. It is not always remembered that the sanction of Parliament so called, is but the sanction of four or five men sitting in committee, and these not particularly familiar with local necessities, or with railway details—indeed, in some cases, so ignorant of both were they, that a confident counsel, and a hard-mouthed swearer, would be in a fair way to have all their asseverations taken as evidence. By a concurrence of circumstances, as much like this as two Chelsea skiffs are alike, it was the good fortune of the line, called the Cornwall line, to obtain an Act of Parliament, authorising its continuance. But the legal authority to do a work is not the work itself; and the company, in this instance, found it was a far easier thing to glide through Parliament than to glide into the good opinion of the public—the shares, in fact, in the Cornwall line became an unmarketable commodity, and a negotiation was opened, as it appears, with an eminent railway contractor, for the sale of their untouched and unasked for debentures. Of course a treaty, in which the vendors sought to pass off a thoroughly hypothetical property against so much gold and silver, was very soon put an end to by the practical non-conductor, and the 15,000 shares in the Cornwall Railway remain with their happy owners. The West Cornwall Railway is in no better case, as it appears, as to funds. It is, undoubtedly, a good, useful, and well-considered line, and will eventually be good property to the shareholders; they had scrip also to sell, and had opened, if not completed, a bargain for its transfer to a candidate for one of the Cornish boroughs in their vicinity; but the suit of the Member having succeeded, and the honeymoon of his intercourse as a representative being at an end, he thought proper to withdraw from the bargain, the terms and particulars of which he had, during his suitors'hip, fully agreed to. This left the company in but indifferent circumstances, and, with the wide spread deterioration in railway affairs, explains the stationary and suspended condition of their undertaking. From the acknowledged merits and utility of this line, we entertain the confident hope of seeing it at work on the narrow gauge—any other in that district would be an unnecessary consumption of power and of property. Connecting itself with the line which, if we greatly err not, the South Western Company will carry down from Exeter through the county, this short line of the West Cornwall would form an important and highly profitable branch of the great trunk line which will ultimately connect the metropolis itself with the foot of the Cornish peninsula.

On a first perusal of the proceedings of the meeting, recently held at Radley's Hotel, of the governors and company of the COPPER MINERS OF ENGLAND, our impression was, that the affairs of the company were so involved, and the views of the proprietary so divided and dissimilar, that there seemed little hope of proceeding successfully with the great business, or of realising the great objects for which the company was originally incorporated—our fears, however, were considerably lessened upon a little further consideration of the state of things actually existing. There was, it is true, enough of that fencing and recrimination which frequently arises when a company, or a cause, is hastening to dismemberment and decay. To our minds, the most necessary feature in the whole case, is the willingness of all parties, in the presence of an impending calamity, to unite their strength, and labour courageously for the resuscitation and repair of their expiring interests. If this is cordially done, not only now in the crisis of their affairs, but as a permanent contribution to the well-being of the estate, of which every man shall consider himself a responsible trustee for others, as well as a share-

holder in his own right, we should not hesitate to forecast the perfect restoration and re-establishment of the interests of this great company, notwithstanding the multitude of its present discouragements. It was our earnest hope and expectation that the large loan which the company was able to negotiate with the Bank of England in the course of last summer, would have given a facility and success to its operations as would have most advantageously filled the credit side of its ledger. Of course applications of that kind do not admit of very frequent repetition; and a renewed call for such assistance would lead to the conclusion that there is something intrinsically wrong in the administration of the company's affairs.

Last week we briefly alluded to the national advantages likely to result from the establishment of such an undertaking as the EASTERN ARCHIPELAGO COMPANY. We remarked on the opportunity which England at present possesses of extending her commerce abroad, owing to the unsettled condition of the rest of Europe, if she will only remain perfectly neutral in the internal affairs of other countries, and direct her sole attention to the amelioration of the state of matters at home. Having thus introduced the subject, we would now follow it up, by more particularly calling the attention of our readers to the highly-important discovery of an abundant supply of excellent coal on the mainland of Borneo. A formal grant of this coal, which extends through a district of 150 miles, having been obtained from the SULTAN of Borneo, is now held by Mr. WISE, with the approval of the Government, and the company intend making arrangements with him for its working. It is scarcely necessary to observe, that coal is the most important and the most extensively used of all the minerals. Without it not only would the ore of iron, copper, &c., be all but useless, but we could never have attained the state of perfection in modern travelling, both by sea and land. Accordingly, as we ourselves advance in civilisation, and as we extend our knowledge and our customs to remote nations, will the consumption of such an important article as coal be increased; but it is, of course, a great consideration, that it should be obtained as nearly as possible to the place at which it is required. The coal used in India by the steam-vessels of her MAJESTY'S navy—those of the East India Company, on the India and China stations, and also of the Peninsular and Oriental Steam Navigation Company, is, at present, chiefly furnished from England, at an average cost of 33s. per ton; but when the operations of the Eastern Archipelago Company are sufficiently matured, the cost will be materially reduced. The steady demand for coal, therefore, for the use of the many British and foreign steam-vessels resorting to the ports of Hong Kong, Singapore, and other places, will be a source of mutual benefit to them, and to the promoters of the Eastern Archipelago Company. We must not forget, also, that it is proposed to extend steam communication to Australia via Singapore.

Such a step has been very powerfully advocated by Captain WAGHORN; and, by the last advices from the colony, we observe that the Colonial Secretary of South Australia (with a population of 30,000 souls) has successfully proposed an annual grant of 3000t. for three years, in aid of steam communication with the mother country. The vast importance of this cannot be estimated; but it is a great consideration, in such an undertaking, that a sufficient supply of coal can be obtained, at a reasonable cost. The comparative propinquity of our invaluable new trading station of Labuan, will enable the adventurers to procure an inexhaustible quantity of coal, at an expense far below what they would pay by getting it from England. We heartily wish both undertakings every success; for, independent of the vast advantages we have mentioned, they must give additional impulse to the great mining operations of Australia.

We shall then be able to obtain earlier information of the progress of the mines, and of the discoveries in that part of the world. But, what is of still greater importance, there will be some chance of the long-desired object being accomplished—that is, the smelting of ores in the colony.

Sarawak, in the Isle of Borneo, is approached by two rivers, in a north-west and north-easterly direction; and vessels of 700 to 800 tons burden can anchor close off the town. It contains, at present about 12,000 inhabitants, and is about 540 miles, or 45 hours' voyage from Singapore. Labuan lies about 330 miles, or 28 hours' voyage, north of Sarawak. The proposed plan for steam communication with Australia, is to place adequate steamers at Singapore, to proceed with mails, passengers, and valuable goods, to Port Essington, through Torres Straits, to Wednesday Island, and so to Sydney. By advices, under date the 20th of December last, which arrived in February, operations were active in working the seam of coal at the north-east point of the island—nearly 400 tons having been raised and stored. Of the excellent quality of Borneo coal there cannot be any doubt. We understand, that samples have been brought over to this country by Mr. WISE, and submitted by her MAJESTY'S Government to a careful examination and analysis by competent parties, with a most satisfactory result.

The Calcutta Coal Committee, appointed by the Bengal Government, has also pronounced Borneo coal to be equal to the best English: Captain WALLAGE, in his report on the supplies of coal obtained from the seam at Labuan, for the use of the Honourable East India Company's steam-ship *Nemesis*, dated Sarawak, 10th June, 1847, observes:—"I have no hesitation in stating, that the coal received at Labuan is equal to any English coal I have seen on board steamers in India, and decidedly better than any coal worked in India for steam purposes."

It appears that a large quantity of gold-dust is annually raised in Borneo; some specimens of which, in large grains, we have seen; as also antimony, which is obtained of a superior nature. A considerable quantity of the former the Chinese obtain by washing the earth, and delving to a depth of some 4 to 5 feet—the gold-dust, from its specific gravity, having made its way through the alluvial, or lighter, soil. We do not know a country which holds out such promising advantages for the capitalist as that to which we have been now alluding; and, in a national point of view, we sincerely hope that English enterprise may be induced to direct its attention to it.

ON THE MANUFACTURE OF SALTPETRE.—The successive Governments of France have, for many years, encouraged every invention and improvement in the production of nitrate of soda, to render them, if possible, independent of England for the necessary supply to the gunpowder works. The artificial nitrites, or nitre beds, collected for this purpose, consist of animal matter, the rubbish from the walls of old houses, stable litter, refuse of plaster works, &c. The decomposition of the animal matter produces carbonate of ammonia, which, dissolved in water, in connection with air charged with oxygen, is transformed into nitrate of ammonia. This product, under the influence of the solar ray, and the action of time, decomposes the calcareous and magnesian carbonates in the plaster rubbish, forming nitrates of lime and magnesia, and reproducing carbonate of ammonia, which, set at liberty, serves anew to form the nitrates. According to this theory, the nitrate plays a double part; it serves to reunite the elements of the atmosphere to produce nitric acid, and it then causes this acid, formed under its influence, to act on the insoluble carbonates, to change them into nitrates. But this action is not the only one; for Kuhlmann discovered that, in most instances, the ammonia itself was decomposed, and that its nitrogen, combined with the oxygen of the atmosphere contained in the water, is thus transformed into nitric acid. These calcareous and other earthy nitrates, dissolved in water, are decomposed by sulphate of soda, thus forming nitrate of soda and sulphate of lime by double decomposition. The nitrate of soda is then heated with chloride of potassium and nitrate of potash (saltpetre), and chloride of sodium (common salt) obtained.

SEPARATION OF OXIDES OF IRON FROM OTHER ORES.

(Specification of patent granted to Arthur Wall, of India-road, East India-road, Poplar, for an improved apparatus for, and method of, separating oxides from their compounds, and each other. Patent dated Oct. 14, 1847.)

This invention, which presents considerable advantages over the means hitherto employed for effecting the objects above stated, consists in so arranging magnets, that they may be made the means of separating the oxides of iron from other oxides, and other compounds containing them; and in carrying this invention into practical effect, the patentee proceeds in the following manner:—He takes a series of magnets, and arranges and combines them into an apparatus in such manner, that they may come successively into contact with the compound to be operated upon. Annexed to this specification is a drawing of the apparatus, which is arranged as follows:—Over two octagonal-shaped drums, mounted upon standards, there passes an endless strap, or band of leather, or other suitable elastic material; and to such strap, or band, there are attached a series of magnets, which are arranged in pairs—three of such pairs being shown placed across the width of the strap, or band; and between the limits of each pair of magnets is placed, and connected thereto, a thin plate of iron, or steel—the extremities of which are split, and turned edgewise, so as to leave spaces between each of the strips—the same being turned up at about right angles to the face of the magnet for the following purpose:—Suppose it is required to separate the oxide of iron from copper, the ore is to be first roasted and ground, and then placed upon an inclined plane formed into a trough, to which the ore under treatment passes; after which, motion is imparted to the drums in any convenient manner, by which the plates, before-mentioned, will be successively passed through and amongst the particles of the ground ore; and in their passage will attract, and thereby separate, and take up the oxide of iron contained in, or amongst, the other particles of the copper, or other ore under treatment. And the oxide of iron thus separated is removed from these magnets in the following manner:—At the opposite end of the trough to that at which the inclined plane is situated, there is an inclined surface, for the purpose of guiding the particles which are to be taken from the magnets into another and separate part of the trough to that in which the copper or other ore under treatment is situated; and immediately above this part of the trough there are fixed three sets of magnets, the poles of which are reversed to those of the magnet first alluded to.

Thus, as the moveable magnets are brought opposite successively to the fixed ones, the effect of the magnets, charged with the oxide of iron, will be neutralised, and the particles will fall therefrom, and be deposited at the bottom of that part of the trough destined for their reception. The patentee states, that this will leave the copper ore in a better state to be dealt with in manufacturing copper. He further states that, in describing the mode of carrying out his invention, he has only spoken of permanent magnets, as he believes them to be the most suitable for the purpose; but he does not confine himself thereto, as electro-magnets may be used instead of them; and this apparatus may be employed for separating the oxides of iron from other ores than copper ores.

The patentee, in conclusion, states, that having described the best means with which he is acquainted, for carrying his invention into practical effect, he desires it to be understood, that he does not confine himself to the precise details set forth and described; but what he claims is, the arranging of a series of magnets into apparatus, for the purpose of separating the oxides of iron from other oxides and other matters.

Patent-office and Designs Registry, 310, Strand, April 27.

THE DOWLAIS IRON-WORKS.—These extensive works, the position of which for some months past has kept thousands of individuals in suspense, and many out of employment, have, we are glad to learn by the *Swansea Herald*, recommenced operations—the difference existing between the executors of the late noble marquis and Sir John Guest having been finally settled. The news was fully confirmed on Saturday, when nothing could exceed the joy depicted on the countenances of the tradesmen and workmen of the town and neighbourhood. On Monday morning the most lively demonstrations of joy were exhibited; an amateur band having paraded the streets the whole of the day. In the course of the forenoon the ardour and enthusiasm of the inhabitants were to some degree damped, in consequence of the blowing out, and taking down of the engine, on the property of G. Overton, Esq.; however, at noon, the news happily arrived that the differences with this gentleman had likewise been satisfactorily arranged. On this an effort was made to blow in the furnaces again, an operation fortunately commenced in time: 14 furnaces out of the 18 will be in blast in the course of a few days, and the other four as soon as they can be repaired—so that it is anticipated the trade of this important district will be resumed in all its activity and vigour. The great privation which both miners and colliers have lately endured will be greatly mitigated. It is expected that Sir J. J. Guest, Bart., will, in the course of a few days, arrive at Dowlais House, where the hon. Member will make a brief sojourn.

PATENT GALVANISED IRON COMPANY.—A meeting of shareholders in this company was advertised to have been held on Thursday last, the 27th inst.; but, from there being two bills of this company still before Parliament, and which are expected to pass about the middle of May, it was decided to postpone the meeting, to enable the directors to lay the result before the shareholders. The adjourned meeting is now fixed for Tuesday, the 30th May.

GOVERNMENT CONTRACT FOR COAL.—Notice has been issued that the Commandant of the Royal Military Asylum will be ready, on or before the 3d of May next, to enter into a contract for 420 tons of the following description of coals: from the Holywell, Hilda, Wall's End, Hotspruit ditto, or Perith pits—to be delivered at the Asylum, between the 6th day of May, and 18th day of September, 1848.

VERTICAL LOCOMOTION IN MINES.—M. St. Preuve read a paper before the Paris Academy of Sciences, on "The Ascent and Descent of the Miners in Deep Shafts, as also of the Ores and Materials." After alluding to the oscillating rods attached to the steam-engines in England, Germany, and Belgium, he says, he considers there is much danger to the miners in this mode, and, moreover, it is inapplicable to the carriage of the minerals, materials, and other inanimate bodies, while his machines serve both for the miners, and all the minerals and materials required to be taken in or brought out of the mine. The platform, which bears the substances to be raised or lowered, has a double movement—first, a horizontal intermittent alternating movement, by which it is passed from one rod to another; and, second, a vertical movement, to perform the ascent and descent. These two movements are determined by the traction which is exercised on one or the other of the two rods, coupled together, the engine stationed at the mouth of the shaft, and by the form of the guides employed, which produce, in an infallible manner, the transition from one rod to the other.

SUCCESSFUL SPECULATION IN SOUTH AUSTRALIA.—A very interesting communication has been addressed to Mr. May, of Plymouth, by Mr. J. B. Neales, late an emigrant from that town, in which he enters into an explicit detail of his prosperous career in the colony—concluding with the following as the result of a portion of his successful outlay of capital:—"Our copper mines are superior to any ever before known. I am happy to say I hold in some of the good ones. My income from the Burra Burra is 800*l.* a year. I bought 20 original shares at 5*l.* = 100*l.*; and 20 shares (5*l.*) at 150*l.* = 3000*l.* I have also 2000*l.* engaged in other mines, producing much."

THE COAL DISTRICTS OF BELGIUM.—The *Mohitor* and other Belgian papers state, that the coal districts of the arrondissement of Charleroi have suffered severely by the loss of the markets of France and Germany, which have suddenly closed against them by recent events—of 26 furnaces existing in that locality there are 15 extinguished. The production of coke-coal has fallen to the extent of 4000 hectolitres per diem, and the extraction of coal has diminished upwards of one-third. The iron trade is also in a very depressed state, as the demands for France have nearly ceased, as parties will not speculate, until they know the result of the change proposed in the customs duties by the Provisional Government in Paris on British iron, steel, coal, &c. The railway contractors, both in France and Belgium, are at a standstill, to see how far the alteration in the import duties will interest them, before they make further purchases of rails, machinery, &c.

THE LATE EXPERIMENTS ON THE STRENGTH OF WROUGHT-IRON TUBES.—We are informed, that Mr. Stephenson intends, in future, to adopt circular tubes for bridge-girders, instead of cast-iron, and that several of these tube-girders have already been made for that purpose.

ROYAL COLLEGE OF CHEMISTRY.—Dr. Sheridan Muspratt delivered an interesting lecture, on Wednesday evening, at the monthly meeting of the subscribers and students of the college, at Hanover-square, on the manufacture of the carbonate of soda, sulphuric acid, and hydrochloric acid; and, in a series of successful experiments, showed how the deleterious gases evolved in the process, and which were so destructive of vegetation, as to have caused an action for damages to have been brought against the Messrs. Muspratt, proprietors of chemical works in Liverpool, upon that ground, might be condensed, and their unhealthy action thereby greatly diminished, if not altogether prevented. Scattered through the rooms were many specimens of daguerrotype portraits and landscapes, of Talbotypes, and of silver and copper electrolytes, all of which were greatly and deservedly admired.

WINNING AND WORKING COLLIERIES.

BY MATTHEW DUNN, MINING ENGINEER.

In last week's *Mining Journal*, we made some remarks on the merits of this essay, and gave a few extracts from the introduction. We now proceed to the body of the work, taking the subjects in the order in which they are arranged—the first chapter being ON THE SEARCHING FOR COAL; and the principal rocks, mentioned by mineralogists as indicative of coal, are stated to be as follows:—"White argillaceous sandstone. If this sandstone has interspersed bituminous or carbonaceous matter, it is reckoned a good indication of coal.—2. If the bituminous shale, schistose clay, and argillaceous ironstone be discovered, it is a further, and a very favourable, indication of coal.—3. If sandstone and limestone alternate, and be accompanied with bituminous shale, it is reckoned favourable for coal.—4. When sandstone and basalt alternate, coal is indicated.—5. Mr. Kirwin remarks, that there is great probability of finding coal in the neighbourhood of mountains of argillaceous porphyry.—6. Although coal has never been found alternating with primary strata, yet it has been sometimes found in their immediate vicinity; and coal has been observed lying on granite.—In searching for coal, the beds and banks of rivulets, as well as ditches, must be examined. We sometimes observe a sooty-like substance spread on the ground; this is formed from the decomposition of coal, and is, therefore, a good indication of its vicinity. It often happens, however, that a district may be very favourable for coal, yet no pieces of coal, or sooty matter, be observed, owing to the coal strata lying deep. In such cases, a good deal of discernment is necessary to determine the particular places in which the trial should be made. Hence the necessity for boring."

With respect to basalt, in connection with coal, a few singular instances are given—for instance, near Artown, in the Island of Mull, upon the shore, is a seam of coal, 12 in. thick, having a mass of imperfectly-shaped basaltic pillars for its roof and its pavement. Sometimes, interposed between it and the basalt, there is a thin layer of schistose clay, mixed with the coal, and deteriorating in its quality. Coal is never so regular under basalt as under the sandstone; but, at Borrowstowness, there are thick strata of basalt interposed between beds of coal, which are worked to a great extent; and at Bathgate Hills, coal and basalt alternate with each other. At Meiser, in Hesse, a bed of coal, from 6 to 9 ft., is covered with basalt to the height of 600 ft. In the Isle of Skye, a seam of coal, from 1 to 2 ft. thick, rests on basalt, and covered by a similar mass, 20 ft. thick. Throughout the Staffordshire and Worcester coal-field, a stratum of basalt prevails; but is most conspicuous at the hill of Rowley Regis—on approaching which the coal becomes charred. For many years, it was considered that this hard rock always terminated the coal measures; but, on trial being made, although very expensive to sink through, valuable coal and ironstone were found below. The rock varies in hardness, thickness, and position, with respect to the different coal beds; but, in general, it may be said to average 30 to 36 ft. in thickness, and to lie about 100 yards below the thick coal; the best ironstone is found beneath this basaltic formation.

NEW RED SANDSTONE.—Previous to modern research, this formation was also looked upon as terminating the coal deposits, as it put a bar to further research, except at great expense and difficulty, and much uncertainty existed as to the quality of the coals, if found, and the capital required to explore the *terra incognita* beneath. The same opinion prevailed with regard to the magnesian limestone in the coal-fields of Yorkshire and Durham; trials being made, however, it was found that the limestone had nothing to do with the formation of the coal, having been deposited ages after the formation of the coal.

MOUNTAIN LIMESTONE.—The magnesian limestone, as before stated, composes a prominent portion of the coal-field strata, while the blue, or mountain, limestone forms the grand barrier between the carboniferous formation and the transition rocks, beneath which we find no coal. The lowest bed of coal is found resting upon a stratum of compact grey limestone, the latter forming, as it were, the shell which envelopes the entire coal formation, and cropping out immediately below the lowest coal.

CHALK.—Although chalk, in Britain, is always considered most remote from any connection with coal strata, yet it prevails to a great extent over the coal fields of Belgium, and especially in the district of Mons, where the Grand Hornu Colliery is sunk through 210 feet of chalk; on its course westwards it increases in thickness, and it has been proved to the depth of 400 feet. There is reason to believe that this chalk continues to thicken, until it exhibits itself in the cliffs upon the coasts of France and Belgium; and there is no reason to doubt, that it is continuous to the cliffs of Dover; and if so, it raises the very curious and important reflection, as to whether, or not, the carboniferous coal fields of Belgium exist under the similar chalk formation of Britain."

ORIGIN AND PROGRESS OF COAL MINING.—It may reasonably be imagined that coal-getting first took place where the mine was rendered visible by the denudation of the surface; or at the debris of the stratification in the valleys formed by the running streams, affording an opportunity of draining by adits, from low levels undercutting the coal and relieving it of water. We, therefore, find that the earliest collieries were worked on high ground; such as the high grounds in the neighbourhood of Newcastle, in 1238; the coal fields at Colliery, near Lanchester, in 1330; at Merrington and Ferry Hill, in 1343; and those of Gateshead, Whickham, and Tynemouth, in 1500. Prior to the introduction of Newcome's steam-engine in 1700, water was raised by engines worked by horses. Rails, to enable the horses to draw greater loads with more ease, were introduced in 1649, by a Mr. Beaumont, a gentleman who lost 30,000*l.* in coal mining speculations. Previous to 1700, water-wheels and chains of buckets were used to drain the mines; and in 1708, windmills were employed. "Mr. Hodgson, in his *History of Northumberland*, states, that the first steam-engine in this part of the country was erected at Byker in 1714, by the son of a Swedish nobleman, who taught mathematics in Newcastle. These primitive engines were worked by the pressure of the atmosphere above the piston, whilst the vacuum was created below by the injection of water into the cylinder, these alternate movements being executed by the hand of the attendants until the year 1718, when a Mr. Beighton invented the means of performing the operations by means of the engine itself, by the application of rods and levers for the opening and shutting of the cocks, which discovery was justly considered an immense stroke of inventive genius. At this period the pumps were of wood, for smaller sizes bored out of the solid, and for some of the larger sorts built with portions of wood. Immediately after that period, the erection of engines became general throughout the northern district, and led to the winning, during the 18th century, of numerous collieries in the counties of Durham and Northumberland, which previous to that time had been deemed unattainable. The Newcome engine was quickly followed by the improved engines of Trevithick, Bolton and Watt, Wolff, and others, having for their object the dispensing with the atmospheric pressure, and working entirely by steam, which led to the erection of engines underground—as we learn, that so early as 1776, one was placed 80 fms. below the surface at Whitehaven, and was applied to the working of pumps for draining the water from a deep mine: the pumps lifted 4 fms. each, one to the other, and were worked by one sliding-rod from the engine. The application of steam to the winning and working of coal mines brought with it a great revolution in the trade. In the North of England a powerful company, called the Grand Alliance, whose descendants yet continue to be workers of several extensive collieries, concluding that coal was not attainable beyond certain depths, leased extensive tracts of available coal, one of the leading conditions of such leases being the payment of certain annual rents, proportioned to the extent of mining ground leased; but the progress of science soon rendered abortive such attempts at monopoly by the winning of a succession of the hitherto difficult mines, and the parties were embarrassed with many of these leases for a series of years, without being able to work or dispose of them. In concluding the subject of engines for drawing water, I may remark, that Cornwall is said to have arrived at a much higher state of perfection in this respect than any other districts, in consequence of the heavy cost of fuel. Whatever may be the merits of the forcing ram, so generally applied in Cornwall, and which constitutes the main feature of their shaft improvement, in comparison with the common bucket used in this country, there can be no doubt that the economic management of their steam apparatus far exceeds the usual arrangements in the coal districts—viz.: their boilers, cylinders, and steam-pipes, are covered and defended with the most studious care, as well as every point relating to the best construction of flues and chimneys; and it cannot be denied that, notwithstanding the cheapness of fuel in the colliery districts, great and unnecessary waste occurs from the mismanagement of these most important subjects."

UNDERGROUND DEPARTMENT.—On this subject the author glances at the progressive measures employed in the underground works, beginning with the bearing system by woman, now happily done away with by Lord

Ashley's Act, and noticing the sledge, barrow, and basket—the skip of Staffordshire holding from 30 to 40 gwt., the coal being built up above the rim, and secured by rings—the introduction of horses and ponies into the underground works, up to the introduction of cast rails, improved modern engines for raising water, safety-lamps, &c. As these, however, are all so well known to our readers, we shall, in our next Number, proceed to the various operations at surface.

NEW TARIFF ON IRON IN ITALY.

In a decree published by the Provisional Government of Italy, for a reform of the customs duties, it states that this reform has seriously occupied the attention of the Central Provisional Government. "The tariff, based on obsolete principles, now rejected by all civilised people, favouring foreign interest, to which our articles of consumption were too long subject, is but little adapted to the wants and intelligence of an era so gloriously commenced. As, however, a complete revision of our customs-house system cannot take place without careful revision and consideration, not within the attributes of a merely provisional power, we limit ourselves, at present, to partial and urgent measures—abolishing every absolute prohibition for the introduction of merchandise, moderating, at the same time, the present duties, which are most burdensome to the general interest. To that extent only the object of the Provisional Government is now directed, reserving to itself the power of making such ulterior modifications as experience may show is necessary."

The duties in future to be levied on iron, until they may be modified or altered by an established Government, are as follows:—

Pig-iron, from 12 livres 85 cents. to 3*l.*—from 8s. 7d. to 2s.
Cast-iron, from 38*l.* 95 c. to 16*l.*—from 17s. 11½d. to 10s. 8d.
Old broken and old cast-iron, from 12*l.* 85 c. to 1*l.* 5 c.—from 7½d. to 8½d.
Raw steel, from 32*l.* 15 c. to 18*l.*—from 1*l.* 1s. 3½d. to 12s.
Steel in bars, from 38*l.* 53 c. to 20*l.*—from 1*l.* 5s. 3½d. to 13s. 4d.
Cast tempered steel in bars, from 18*l.* 75 c. to 12*l.*—from 12s. 3½d. to 8s. 4d.
Blades, cylinders, screws, from 51*l.* 45 c. to 15*l.*—from 1*l.* 4s. 3½d. to 10s.
Tin, from 83*l.* 56 c. 15 *l.*—from 2*l.* 16s. 3½d. to 10s.
Iron bars, hoops, nails, and anchors remain at the present import duty—namely: 32*l.* 15 c.—1*l.* 1s. 3½d.
Plate iron rails are reduced from 32*l.* to 20*l.*—from 1*l.* 1s. 3d. to 13s. 4d.
Anchors, common snuffers, iron for rails, chains without distinction, common iron work used for carts and carriages, continue at the present import duty of 64*l.* 30 c.—2*l.* 2s. 10d.
Scythes, files, rasps, and ordinary straw cutters, from 64*l.* 30 c. to 15 *l.*—from 2*l.* 2s. 10d. to 10s.
The import duty on pig and sheet lead, and of old or broken lead, is reduced from 33 *l.* 75 c. to 2 *l.*, from 1*l.* 2s. 5d. to 1s. 4d. per cwt.

THE FRENCH MINING INTEREST.—Our Paris correspondent writes—

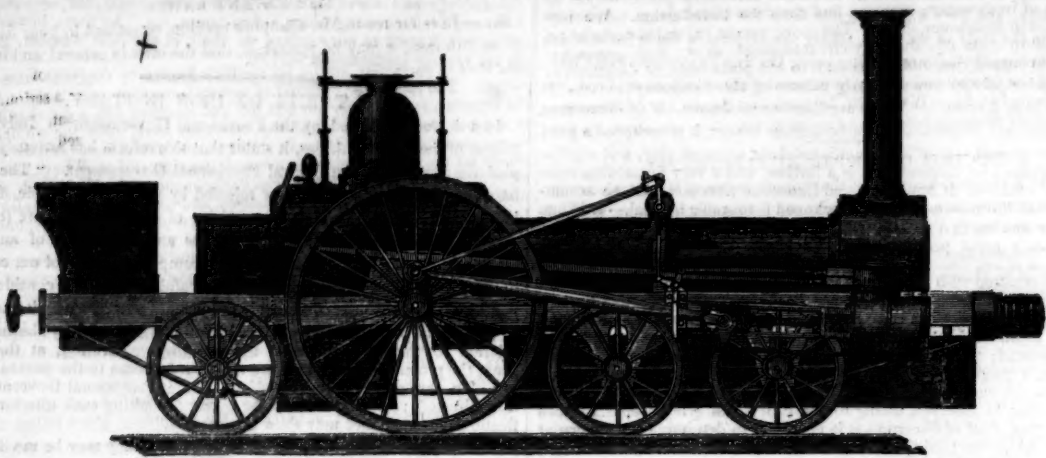
"Notwithstanding the absorbing nature of the political anxieties of this peculiar juncture, the Minister of Public Works, or rather his department, is not unmindful of mining interests. The mineral wealth of Algeria attracts peculiar attention; and it is quite certain, that as soon as a new Government shall be established, measures will be taken to turn it to account. My opinion is, for reasons which I have more than once stated, that it is not so great as has been represented; but there is no doubt that it is too important to be altogether neglected. I have been informed, that the Scotch ironmasters deem the present a favourable time to press on the French Government the importance of modifying the tariff on the importation of British iron—Great Britain in return according advantages in the importation of French wines and brandies. I am not quite certain, that this is the moment to pester the Government with such matters—give a little time for things to settle down. The Scotchmen further propose, I am told, to take measures to get the French press to take up the matter. To this there can be no objection; but they are mistaken, if they suppose that the principal French journals have neglected such an important subject. Within the last two or three years they have published as much about it as the *Mining Journal* itself. The *Journal des Débats*, the *Journal des Economistes*, the *Journal des Chemins de Fer*, and the *Siccle*, have been the principal adversaries of the monopoly of the French ironmasters, and they will, no doubt, continue to be so when tranquil times shall return."

MINING STATISTICS OF THE PROVINCE OF CARTHAGENA, IN SPAIN, FOR THE YEAR 1847.—There were, in the course of the year, in active work, 173 mines, which employed 384 men; 245 horses and oxen were employed in the drawing of the water and carriage of the ores; the produce was 291,377 quintals of mineral, which was subdivided in the following proportions: 1400 quintals of carbonate of copper, 289,977 of lead; of this latter there were 34,200 of galena, mixed with blende and pyrites of iron and copper, and 255,777 of carbonate of lead, in combination with different oxides of iron. There were 32 manufactures, which occupied 755 men and 90 horses, which produced 20,883 mcs. 5 ozs. of silver, 119,008 quintals of lead, and 181 arrobas of refined copper. The consumption of fuel (in general Newcastle coke is used) was calculated at 200,000 quintals. The total number of furnaces was 59 calcining; 91 blast, of different dimensions and descriptions; 6 reverberatory; 14 cupolas—3 English, and 11 German. The intrinsic value of the produce obtained, which had to pay a duty to the Government of 5 per cent., was 9,815,617 reals, equal to about 102,246*l.* sterling.

METHOD OF PREPARING IODIDE OF POTASSIUM.—Take of iodine, 94 parts; quicklime, 40 parts; iron filings, 24 parts; slake the lime with water, and add iron filings to make a pasty mixture; to this add the iodine in small portions, at a time that the action may not be too violent, stirring the mixture the whole time. Should the re-action be too violent, it may be lessened by small additions of water. Triturate the mixture until a slight trace of the liquid, placed on paper previously imbued with starch, does not produce a brown colour, but only an ochreous spot; then throw the whole on a filter, and wash it until the water, which passes through the filter, gives no precipitate with acetate of lead. The waters which have passed through the filter are now mixed together, and treated with a solution of carbonate of potash, until the liquor gives no further precipitate. Filter well the deposit of calcareous carbonate, and a perfectly colourless solution will be obtained, which may be evaporated and crystallised in the usual way. By this process, 94 parts of iodine give 119½ of iodide of potassium, perfectly white and pure.

ATMOSPHERIC RAILWAY PROPULSION.—A patent has been taken out by Mr. B. Fell, of Winchester-street, and Mr. J. Fell, of Belgium, jointly, for working an atmospheric railway by compressed air. Along the centre of the line of railway runs a pipe, one end of which communicates with a compressing-air pump; along the side of the line are placed a series of chambers, or reservoirs, for the reception of the compressed air from the main pipe with which they communicate. These reservoirs are placed at equal distances along the line—the pipes from which are furnished with a valve, opening inwards, to prevent the return of the compressed air. Another pipe proceeds from the compressed-air chambers, passing upwards through the main pipe, and terminating flush with the outer surface, and open to the atmosphere. At a convenient part of each of these pipes, and near the main, is a stop-cock, acted on by a lever-balance, by which it is always closed, except when opened by the passage of a train. The motive carriage is similar to a locomotive, as at present employed, but worked with compressed air instead of steam. There is a chamber, or reservoir, attached, to be charged with compressed air from the stationary reservoirs; and beneath the carriage is a long slide-valve, the whole of its length enveloping the main pipe for about three-fourths of its circumference; this slide-bar is hollow, and from its interior a pipe proceeds to the reservoir beneath the carriage. The under side of the slide-bar, which, when in motion, moves air-tight over the surfaces of the main pipe, is provided with a series of circular apertures, corresponding in position and size, with the openings of the pipes from the reservoirs, which apertures are closed by valves, opening inwards in the hollow slide-bar. Atmospheric air being compressed to the necessary pressure in the reservoirs, and the engine, or carriage, set in motion, the slide-bar comes in succession over the orifice of each pipe from the reservoirs; at that instant, a tappet on the carriage acts on the lever of the stop-cock, allowing the condensed air to flow from the reservoir into the chamber on the carriage, and thus act on the driving-wheels—the valves of the slide-bar close immediately on passing from the several orifices on the main tube. The patentees modify their invention, by employing, in some cases, double valves, for securely sealing the tubes; and they also employ ratchets instead of compressed air, by reversing the action of the air-pump and valves.

IMPROVEMENTS IN THE LOCOMOTIVE ENGINE.



Mr. W. B. Johnson, of Manchester, has taken out a patent for several improvements—the most important being, a principle for lowering the boiler, and thereby securing much greater steadiness than by the present system. In his specification, several methods of effecting this are described—1. By leaving out any number of the lower horizontal tubes, and carrying the coupling axle through a recess, formed in the under part of the boiler.—2. By constructing in the fire-box a hollow bridge, through which the driving or coupling axle is carried; the flame, or calorific, generated in the fire-box, being conveyed over the bridge into the chamber, and from thence into the tubes.—3. By forming, in the upper part of the fire-box, an inverted bridge, or recess, opened out to the top of, and passing through, the steam chamber; the coupling axle is carried through this recess; the heat is conveyed over the bridge, under the inverted bridge, into the chamber, and from thence to the tubes.—4. By placing between the tubes a chamber; in the upper part of which is an inverted bridge, or recess, which opens out to the upper side of the boiler; through this inverted bridge, the driving axle is carried. The calorific, after passing from the furnace through the first length of tubes into the chamber, is, after passing under the inverted bridge, conveyed through the second range of tubes into the smoke-box. In the two last cases, the chamber is furnished with doors to facilitate the cleaning and repair of the tubes; and a dome is placed over for the purpose of forming a steam communication between the two parts of the boiler divided by the recess. The advantages claimed by the patentee are—that, with the boiler the same height from the rails, a much more moderate-sized wheel can be applied; and that the choking of the first length of tubes does not interfere with the heating of the second length of tubes, as all the particles of fuel, passing through the first length of tubes, will lodge in the chamber, and, consequently, not interfere with the steam-generating power of the tubes leading to the smoke-box. He next describes an improved arrangement for working the eccentrics for giving motion to the slide-valves and feed-pumps; a contrivance for diminishing friction in the eccentrics; two methods of working steam expansively, getting rid of the throttle valve—and one eccentric suffices for each engine; an expanding slide, or guide block; an arrangement for coupling the four wheels, and placing the cylinders outside; and, lastly, an improved steam-whistle. The details of these several improvements are shown in a descriptive article in the *Mechanics' Magazine*—to which we are indebted for the accompanying engraving. The action of the whistle is as follows:—There is a chamber, which is first exhausted of air by a pump, worked in any convenient method from a wheel axle, or otherwise, and then atmospheric air is passed through it. The advantages of this plan (he says) are—that the pump for exhausting the chamber can work for any length of time without danger of bursting, as is the case when compressed-air or steam is employed; also simplicity, as no safety-valve, or gearing, for throwing the pump out of work, being required. The above engraving is a general view of an engine with Mr. Johnson's improvements.

IMPROVEMENTS IN LOCOMOTIVE ENGINES.—Mr. J. Pearson, of New-Cross, has taken out a patent for a newly-constructed engine, in which he places two boilers end to end, with one fire-box, common to both in the centre. The axle of the driving-wheels is placed centrally over the fire-box; the steam domes (of which there are two) are placed one over each end of the fire-box, communicating together by means of a horizontal pipe. Independent of the driving-wheels in the centre, there are two pairs of leading wheels and two pairs of trailing wheels, not fixed to the frame in which the boiler is secured, but attached to a separate one, called "a bogie frame," which is attached to the main frame by a bolt in the centre, allowing a slight motion, when necessary, in passing curves. These bogie frames are also placed under the carriages, and connected by long bolts, or rods, passing from one to the other outside the driving-wheels—the ends being secured to the frames by nuts, under which are washers of vulcanised India-rubber; the object being, from their elasticity, to allow the frames to deviate from a direct line, and conform to the curvature of the railway. By placing the driving-wheels in the middle of the length of the two boilers, the patentee states, he can throw any amount of the weight of the boiler on those wheels. He also so constructs the boiler, that the steam and water communication can be cut off—thus forming two distinct boilers, when any occasion may render it necessary.

CARBONIC ACID AS A MOTIVE POWER.—At the Paris Academy of Sciences a paper was read, on the application of carbonic acid as a motive power, by M. Jugu, C.E.; in which the author notices the recognised fact, that the force of carbonic acid has no limit; and that, to show that steam is as nothing to it, carbonic acid may be condensed, with the heat of boiling water, to 75 atmospheres. The ordinary locomotive engine takes a power of six atmospheres; and Mr. Jugu proposes an engine to be worked with carbonic acid, the principle of which is not to lose the gas, but after it has served to work the pistons, be made to return, without loss, into a vessel similar to a portable gas holder, to be placed in the hinder part of the locomotive; and thus an apparatus, so charged at a station, might be made to work for years, until required to be repaired. Common chalk, or other ordinary carbonate of lime, will yield 220 quarts of gas from 24, by the application of sulphuric acid, diluted with ten times its weight of water. He then enters into statistical detail as to the quantity of gas required to carry a locomotive certain distances at given rates per hour, and from which he deduces the following conclusions:—1. That by suitable apparatus placed at each station, six atmospheres of carbonic acid may be concentrated for an unlimited time, from whence the receiver may be filled.—2. An apparatus having double compartments, will keep the carbonic acid, after it has done its work, which would otherwise be lost.—3. The gas after having communicated its motive power to the engine, instead of being lost like steam, will return under the condensing vessel, where the pistons, regulated by the size of the other pistons, will force into the condensing receiver a quantity of permanent gas, corresponding to the quantity of condensed gas issuing from the other side, for the purpose of moving the engine; and 4, the only question not yet entirely resolved is, to make the permanent gas re-enter the condensing apparatus, with the absorption of as little power as possible. To accomplish this, he proposes to place a lever on each side the engine, put in motion by eccentric, adapted to the first moving wheels; at each extremity of the lever will be placed a winch, which will move two pistons of a given diameter, so that the gas may pass in and out without hindrance.

STAMP DUTIES, &c.—It appears from a Parliamentary document just printed, that the gross produce of stamp-duties, land and assessed taxes, and property-tax, in 1847, was 17,254,609*l.*; of which 7,282,273*l.* was from stamp-duties, 4,470,948*l.* from land and assessed taxes, and 5,462,458*l.* from property and income-tax. In England, in 1847, the net receipt on stamp-duty on newspapers and supplements for advertisements amounted to 284,338*l.*, and on advertisements 182,667*l.*, which is the largest sum paid on advertisements in the last 15 years, with the exception of 1833, when it amounted to 187,122*l.*

Original Correspondence.

PURE IRON, &c.

SIR,—I feel much indebted to Mr. Robert Mushet for his courteous, interesting, and valuable letter of the 17th inst., which appears in the *Mining Journal* of last week. It will furnish me with abundant materials for thinking; but I must defer its consideration for the present—my attention being entirely devoted to other matters at this time. I will briefly relate the circumstances which first gave me the notion of iron in the state of pure metal. While engaged in the thankless and unprofitable task of extending the use, and increasing the consumption, of anthracite coal, I was at iron-works where they were working, under Clay's patent, for using a mixture of Lancashire iron ore, an oxide of iron, and some carbonaceous matter with pig-iron in the puddling-furnace. A quantity of very rich cinder was there produced, and turned out as refuse. I thought it a pity to see such a waste of iron, and proposed making some trials to reduce it. We first run down some of the cinder with coke in a cupola. All the cinder which came within range of the blast came out of the cupola just as it went in; but, out of the range of the blast, we found the coke all bound together with thin plates, or films of iron, which was extremely tough and pliable when cold. I then thought of treating the cinder with carbon, before running it down in the cupola; but it was of such a vitreous character, that carbon, either in its solid or gaseous state, would have no effect upon the solid cinder. On one occasion, when running down some prepared cinder in the cupola, it got set fast in the hearth, and the charge was left in all night. The next day, when cutting it out, after it was cold, I found some lumps of iron in a peculiar state, apparently very pure; and, although malleable in one sense, taking a deep indent of a hammer-head, when struck cold—in fact, like a lump of lead—still the blacksmith could do nothing with it in his fire: it would not work at all, crumbling to atoms under the hammer when hot. The idea immediately occurred to me, that this must be iron in its purely metallic state; and, by a train of reasoning, I arrived at certain conclusions, relating to the state and properties of bar-iron.

I have just at hand a parcel of memoranda, which I have made from time to time; and from these I will select a few leading points to explain my ideas. As soon as my mind is less occupied than it is at present, I will ruminate upon the facts which Mr. Mushet has given me, when I believe I shall find it necessary to make considerable modifications afterwards. No operation in the manufacture has yet been attempted to produce iron directly in its pure metallic state, as the thin sheets prepared for tin plates approaches it most nearly; but this is arrived at by a long and expensive routine of operations, and the waste of one-fifth or one-fourth of the metal. Bar-iron is a mixture of metallic iron and cinder—the former drawn into fibres during the operations of the mill and forge; the latter is an important compound of iron, not mere dross and refuse, as generally regarded. This cinder is a compound of iron, oxygen, and carbon, is fusible at a high heat, very adhesive and tenacious at a lower heat, hard and brittle when cold. Its presence, during the operations of working, is the cause of the metallic portion of a mass of iron passing into fibres, which are cemented together by the cinder, much as the fibres of hemp and tar in a rope—only, in the case of a bar of iron, there is no twisting. When pig-iron is subjected to the refinery-fire, it is acted upon by a blast in contact with carbon, coke, where it absorbs both oxygen and carbon, furnishing the elements of cinder, to facilitate the subsequent operation. In the puddling-furnace, the pure iron and cinder separate—the iron being gathered up into a ball (a porous mass), which may be compared to a sponge, having the pores filled with melted cinder. Hammering, or squeezing, and drawing out through rolls, produce the effect just stated. Cinder renders bar-iron stiffer when cold, but more pliable when hot; it is the essential principle of welding; and its presence in merchant bars is necessary to constitute good workable iron for the use of smiths, or to be wrought afterwards into some other form. The deficiency of cinder in some iron—or rather, perhaps, the deficiency of carbon in the cinder—is the chief cause of the property termed "red-short." But when iron is wrought at the forge into a form for permanent use, the more nearly it can be brought to the pure metallic state, without doubt, so much the better. The presence of cinder in iron, used for railway purposes, is very objectionable. The grinding and torsion to which it is subjected by the working of the line reducing this cinder to dust, the fibres become loosened—hence the lamination of the iron in the rails, so much complained of, and the alteration in the texture of the axles of railway carriage wheels, after being some time in use, which has been the subject of so much perplexity. I have hazarded these opinions with the view, and in the hope, that they may elicit remarks upon this interesting subject from some of your more talented correspondents.

Crummum, April 25.

STEAM BORING MACHINE.

SIR,—My attention has been drawn to two letters, published in your *Journal*, on "Boring by Steam." Mr. J. B. Wilkin, of Helston, after stating that he had proposed a machine for boring hard rock at Wheal Vor, goes on to mention having seen a notice that some one at Calstock had taken out a patent for certain improvements in machinery for boring and sinking; but in what way was not stated. I believe my patent is the one alluded to—the specification of which will be published in a few days. My chief aim, in the construction of the borer, was to supersede the use of rods, by means of chain, rope, or other flexible articles, to make it take up its sludge within itself as soon as formed—to make a perfectly round hole at one and the same operation—to prevent its following soft ground, and thereby becoming fitchered, or stuck—and to combine these desiderata with a simple and portable machine for working it, either by steam or other power, so constructed, that the blow given by the borer should always be of the same uniform weight, no matter what the depth of the hole might be—so that, if one-horse power be sufficient to bore a foot, so should it be sufficient to bore to the depth required—the extra weight of chain being counterbalanced as the hole progressed in depth; and I hoped, by these means, to reduce the cost of boring to great depths very considerably. Whether I have obtained my object will be seen hereafter. I believe I have. I quite agree with Mr. Wilkin in thinking, that could the price of boring be reduced, and the speed increased, it could be very beneficially applied to mining generally—not only for ventilation and trying lodes, but also for lessening very considerably the cost of sinking such shafts as are intended to hole or intersect a certain level, by first boring to the level and letting down the water—thereby converting a wet shaft into a dry one, obviating the expense of pump-work, flat-rods, pulley-stands, extra power of engine, &c., &c. The great expense attending the different systems for boring yet brought out, appears to me to be incurred by the necessity of using jointed rods, which entail an endless number of screwings and unscrewings, every time the bit requires to be withdrawn, either for re-

pair, or for the purpose of removing the sludge, or debris—the time required for this process being sufficient, at any considerable depth, to prosecute the hole to the extent of some feet. By my plan, substituting chain, and using a hollow borer, it can be raised easily at the rate of 30 fms. a minute, bringing with it a sample of the stratum last operated on.

Calstock, April 26.

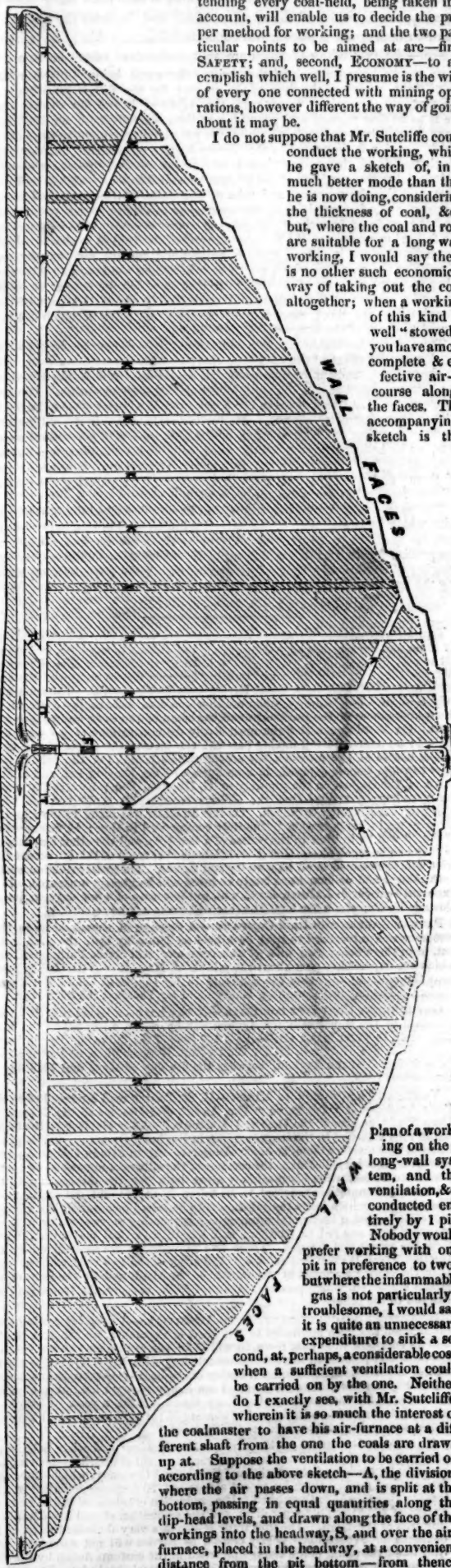
W. G. GARD.

SUTCLIFFE AND DEAKIN'S LONG-WALL WORKINGS.

SIR,—In your *Journal*, some time since, appeared the theories of scientific men regarding the ventilation of mines—opposed to the system practised by those acquainted with the subject; but here we have the observations of two men, practically (and, I suppose, thoroughly) acquainted with coal getting, as well as ventilation, in its most approved form, and these also differing regarding the mode of working and ventilation: however, it is pleasing to observe their little difference conducted with so much good feeling; and a person can scarcely help wishing it could be continued at some length, in the shape of discussion, for the benefit of a great many who are young, and far less experienced than themselves.

In coal working, the thickness of the coal, along with peculiarities attending every coal-field, being taken into account, will enable us to decide the proper method for working; and the two particular points to be aimed at are—first, SAFETY; and, second, ECONOMY—to accomplish which well, I presume is the wish of every one connected with mining operations, however different the way of going about it may be.

I do not suppose that Mr. Sutcliffe could conduct the working, which he gave a sketch of, in a much better mode than that he is now doing, considering the thickness of coal, &c.; but, where the coal and roof are suitable for a long wall working, I would say there is no other such economical way of taking out the coal altogether; when a working of this kind is well "stowed," you have almost complete & effective air-course along the faces. The accompanying sketch is the



plan of a working on the long-wall system, and the ventilation, &c., conducted entirely by 1 pit. Nobody would prefer working with one pit in preference to two; but where the inflammable gas is not particularly troublesome, I would say it is quite an unnecessary expenditure to sink a second, at, perhaps, a considerable cost, when a sufficient ventilation could be carried on by the one. Neither do I exactly see, with Mr. Sutcliffe, wherein it is so much the interest of the coalmaster to have his air-furnace at a different shaft from the one the coals are drawn up at. Suppose the ventilation to be carried on according to the above sketch—A, the division, where the air passes down, and is split at the bottom, passing in equal quantities along the dip-head levels, and drawn along the face of the workings into the headway, B, and over the air-furnace, placed in the headway, at a convenient distance from the pit bottom—from thence

through a stone mine, driven into the shaft, B B, two or three fathoms above the door-heads; by that arrangement, the pit bottom is always clear and open; neither is there any disagreeable heat or smoke; K K, &c., are roadways; those roads dotted are thrown off by the slant roads; T T, &c., are trap-doors, and F the air-furnace. Any inconvenience I can see, is the men going up and down the shaft—possibly the ropes may not last so long; but compare a few of these trifles with shafting an 80 fathom pit—and what then?

As regards ventilation, in a long-wall working, it can be carried on far more effectively than by any other mode of working. The objection of Mr. Deakin to the building up of the ends is quite correct, both in a safe and economical point of view. Still I do not see that he can do away with the cost of driving a heading and levels in the fast—these must be kept going as long as a pit continues to be extended, and at a greater cost than the rest of the walls. Perhaps, in that particular sketch of his in the *Journal* of the 1st inst., there may be no extras for solid working, seeing the old waste gives an open hand to the foregoing place; but, in opening up a pit, there can be no such advantage.—N. B.: April 19.

ON THE FORMATION OF COAL.

Sir,—Your correspondent, Mr. Robertson, of Halbeath Colliery, in last week's *Mining Journal*, seems to think that, because he has never found the internal portion of fossil trees of the carboniferous formation converted into coal, the view which ascribes this mineral to a vegetable origin is not, altogether, without its difficulties. It is certainly correct, that in such fossils generally, their original substance has been replaced by sandstone, or shale, and nothing has been converted into coal except the thin cuticle; but cases are not wanting, in which the internal portion has undergone a similar conversion. The Newcastle Museum contains a log, as it were, of apparently coniferous fossil wood, for the most part changed into coal; and I have lately procured a specimen of *Stigmara*, from the roof of one of our pits, having the whole of the large outer zone, consisting originally of cellular tissue, in the condition of pure cherry coal; but with its ligno-vascular cylinder replaced by sedimentary matter. A case of this kind is exceedingly difficult to explain, inasmuch as the tissue of the ligno-vascular cylinder, from its firmness, was more likely to be preserved than the thin soft parenchyma composing the outer zone.* In fact, this is what generally obtains; for, in most of the coal-measure plants I have examined, containing internal structure, the ligneous and vascular tissues alone are preserved—the exceptions being *Lepidodendron*, and some undescribed ferns, whose cellular tissue appears to have been as hard as the woody fibre of many dicotyledons. But vegetable fossils of the carboniferous epoch, I may observe, are found in all states. Specimens of *Stigmara* are not uncommon, in which the cellular tissue of the outer zone, pith, and medullary rays, is replaced by mechanically-deposited matter; while the part that was occupied by the fibrous bundles of the ligno-vascular cylinder is vacant—forming an exact mould of this part. In many fossil woods, the vessels are filled with silica, carbonate of lime, &c.—the walls of the vessels often being the only parts that have become bituminised: in such cases, these substances, in the state of solutions, have permeated the vessels, after the disappearance of their albumen and other contents. In other fossil woods—as the *stigmara* and coniferous log already mentioned—nearly the whole of their substance has been changed into coal. Reverting to the first two cases I have mentioned, as they only bear on the point under consideration, I may observe, that if there are any “coal pipes” associated with the coal beds, Mr. Robertson is in the habit of examining, he may safely conclude that they are examples in which the original tissue of some plant has been converted into coal. The *stigmara*, before alluded to, is a portion of a coal-pipe.

Fossil plants, having their interior filled with shale, or sandstone, do not, in the least, invalidate the view advocating the vegetable origin of coal; and the circumstance may be easily explained, on the idea, that the tissues of such plants, in an early stage of fossilisation, had decomposed or rotted out, leaving only the hard resisting cuticle to be converted into coal. Cases in which the like result would happen, under proper circumstances, are not uncommon at the present day. Mr. Hawkshaw mentions, that trees, in this state, abound in some of the forests of South America: trunks are lying on the ground, appearing as if formed of solid wood, but which are nothing more than hollow cylinders of bark—the wood having rotted out, through humidity, and other causes. Suppose such hollow cylinders to be filled with sand, or mud, they would closely resemble, in condition, most of the fossil plants imbedded in the coal measures. Perhaps, to obviate the difficulty suggested by Mr. Robertson, some one may hazard the opinion, that the stems of plants, such as *Sigillaria* and *Lepidodendron*, which are those generally filled with mineral matter, were originally hollow; but this is not the case, as proved by the researches of Brongniart, Lindley, Hutton, and others. Even *Calamites*, which many still suppose was fistular, and similar to *Equisetum*, was, undoubtedly, a hard-woody plant. Pitmen, in the course of their excavations, occasionally fall in with groups of fossil trees, standing erect, with roots shooting out in all directions, and as crowded as in a forest. Mr. Nicholas Wood, the eminent colliery engineer, some years ago, described, in the *Transactions of the Natural History Society of Northumberland*, &c., vol. i., a group of trees penetrating several strata at right angles: the roots, and the lower portion of their stem, which were imbedded in shale, consisted of the same kind of sandstone as composed the strata enclosing the upper portion of the stem. The *Lepidodendrons*, mentioned by Mr. Robertson, form another case in point. Six years ago, I succeeded in erecting, in the Newcastle Museum, two beautiful specimens of *Sigillaria*, composed of shale, and encircled with a film of coal, originally the cuticle: both specimens are about 7½ ft. in height, and 27 in. in diameter, and were found standing erect, and rooted on a thin bed of coal. Such cases may be explained on the supposition, that the interior of the trees had rotted out while they were still standing in their original position, submerged in water loaded with mechanically-suspended matter—this matter, at the same time, gradually depositing itself in the hollow trunks, &c., and afterwards hardening, so as to form the solid, erect, pillar-like fossils that have been mentioned. This view more particularly applies to the fossil trees found in a perpendicular position: those occurring in an inclined, or a horizontal position, appear not to have been so readily filled up with sediment, as the opposite portions of their cylinder of cuticle are generally found pressed together—in many cases completely so—in others, with only a thin layer of shale, or freestone, intervening. In many of the Newcastle pits, the roof, in some places, is crowded with fossils in this compressed state: trunks, roots, branches, and leaves, are matted together and entangled in the greatest intricacy—so much so, that the roof appears to be kept up by means of this complex interlacing. In some wastes, I have been compelled to creep through openings, formed amidst broken stems and roots, which appear to have been heaped together in the very confusion.

Coal beds have, undoubtedly, resulted from vegetable matter, which has been covered up with sand or clay shortly after its deposition—for it is difficult to conceive, on chemical principles, how it could have been converted into coal, had it remained for any length of time uncovered. The fossil trees, composed of sandstone, &c., must have been deprived of their tissues through being exposed to the action of air or water; while those possessing organic structure (leaving out of view the siliceous and calcified specimens) as well as the vegetable masses, that have formed our coal beds, have been covered up and protected from these agents, and afterwards gradually bituminised by means of a peculiar kind of chemical action, which, I regret, neither time nor space will permit me to explain at present.

We are still very much in need of data respecting the kinds of plants whose remains have formed our coal beds: we can only be certain on this point by examining microscopic sections of coal. The late and estimable Mr. Witham, discovered traces of coniferous wood in coal; and I have sections of this mineral from Hutton and Dalkeith, exhibiting numerous and decided traces of both cellular and fibrous tissue. It is highly probable, that coal beds are made up of the remains of most of the plants which grew not far from the places where they are now entombed: it will thus be seen, that I am inclined to favour the view, that our coal beds are composed principally of drifted vegetable remains. I am led to this opinion, in consequence of only being certain, that a few plants, such as *Sigillaria* (of which *Stigmara* appears to have been the root), *Calamites*, and an undescribed bulbous plant, vegetated on the site of our coal beds. Mr. Robertson mentions a circumstance which may throw some light on the habitat of another plant—viz. *Lepidodendron*, specimens of which occur in the very heart of one of the coal beds of (?) Halbeath Colliery, having their inside filled with the same sandstone that forms the roof of the coal. Perhaps Mr. Robertson will favour the readers of the *Mining Journal* with an account of the position in which these *Lepidodendrons* usually occur? If they are perpendicular, and have roots running out horizontally, I would be disposed to conclude, that they grew in their present situation: we must not forget, however, that the “snags” so common in the American rivers, show that trees may be covered up in a growing position far from where they vegetated. From certain peculiarities in the roots of *Sigillaria* and *Calamites*, when found in their place of growth, and some other circumstances, I am led to conclude, that many coal beds of this district were formed in muddy swamps: and, from the nature of the animal remains associated with deposits of this kind, it is evident that these swamps were subject, as circumstances most favoured, to the irruption of both marine and fresh water. The coal beds of the inferior division of the north of England carboniferous formation have been deposited in situations subject to marine inundations; as they are interstratified with rocks containing sea-shells, the roof in some pits being filled with their remains: on the other hand, the coal beds of the upper division (those

* It is highly probable, that some of the readers of the *Mining Journal* may be acquainted with the terms used in this communication, but they will find them sufficiently explained in a paper which I published in vols. 26, 27, and 28 of the *Edinburgh Philosophical Journal*, entitled, “Contributions towards establishing the General Character of the Fossil Plants of the genus *Sigillaria*.”

worked in the Newcastle district), have been formed in places subject to irruptions of fresh water; since we find their associated strata containing the remains of freshwater shells. The more recent vegetable deposits on the Yorkshire coast are similarly circumstanced; as we find *ammonites*, adhering to logs of jet, and a true *unio* in the plant beds of Gristhorpe. Regretting the brevity and desultory nature of the foregoing remarks, I beg to remain, Sir, &c.—Wm. KING, Lecturer and Supervisor of Museums, North of England Museum of Scientific and Economic Geology; Newcastle-on-Tyne, April 19.

REDUCTION OF COPPER BY ELECTRICITY.

Sir,—As it is a well-known fact that copper is one of the metals which require the greatest care, and the longest time in reduction, any method which may shorten that process, I have no doubt, will be read with interest; by your numerous readers. Some time since, a process was discovered in France, by MM. Gaultier de Claubry and Dechaud, which, as I believe it is not known in England, I take the liberty of communicating to you.

Two solutions are poured over each other in a vat—the heaviest a sulphate of copper, and the other a sulphate of iron; with the first solution, a copper-plate is placed, and in the other a cast-iron plate; if these are placed in combination by a metallic conductor, a galvanic chain is formed, the force of which is strong enough to decompose the sulphate of copper. The acid and sulphuric salt attaches itself to the iron, which forms a sulphuret of iron; while the copper precipitates itself on the copper-plate, which forms the negative pole. That copper which is first precipitated is chemically clean; but as the quantity of muriate of iron constantly increases, the copper in its precipitation takes it with it; it becomes, consequently, mixed, and deposits itself in the shape of powder, as the solution becomes weaker. During the time that the decomposition of copper becomes lighter and poorer, the iron increases in weight. By this method, there is formed in the vat—1, a normal precipitation of copper, which is at the bottom; 2, a less precipitation of the muriate of copper; 3, a concentrated solution of sulphuric oxydide of iron; 4, a normal solution of the same. In order to obtain the copper in the form of plates, it is necessary to separate the weaker copper solution from the stronger one of iron, and in this consists MM. Gaultier and Dechaud's improvement. Their apparatus consists of a case lined with lead, and, subsequently, with wax, or a material of the same description, to contain the vitriolic iron. This case has two divisions; in the upper the normal solution is placed, and in the lower the heavier is tapped off by a cock. In this case, at proper distances, smaller ones are placed, of copper or lead, lined with sheet-iron; the upper part and the bottom are whole, the sides are open, but furnished with coverings of pasteboard. In an interior aperture, through a cock, the concentrated copper solution is poured; and through another cock, almost at the top of the case, the other solution is tapped. In one of these cases the negative metal (copper-plate) is placed, in order to take up the copper which precipitates itself; and between the cases, as well as outside of them, there are iron-plates, which serve to produce the galvanic stream.

The metal conductors are brought in combination with the galvanic chain; and the apparatus is so made, that as much concentrated copper vitriol and weak solution of iron vitriol is formed, as there decreases weak copper vitriol and concentrated iron. In order to help the stream between these two solutions, which are in combination with each other, and yet separated by these partitions of pasteboard, which are above the niveau of the negative plate, these are furnished with apertures—so that the normal solution of vitriolic iron, which is in the upper portion of the case, can spread itself over the copper solution in the interior portion. The apparatus once in order, the copper plates have only to be taken out, when they have obtained the required thickness, and to furnish iron as soon as they are dissolved. The iron necessary to be used can be the worst. The copper formed by this process has the same fineness and grain as tough cake copper, and can be rolled and used for all commercial purposes. It must be observed, that all the copper is not precipitated on the plates, often three-fifths or one-half is obtained in the shape of powder, which must be smelted into ingots. The electro-chemical method of the reduction of copper ores by MM. Gaultier and Dechaud, according to Becquerel, has many advantages over the old processes; but it is necessary that the ores, at a small expense, should be reduced to sulphates. This appears to be the technical question, as to the practicability of the invention; on the other hand, if the weaker copper solution absorbs more iron, and this is again mixed with the ore to obtain the sulphate, and afterwards introduced in the apparatus, it is probable that the quantity of the iron will be so great, that the quality of the copper will be deteriorated. In order to avoid this evil, the solutions holding too great a quantity of iron must not be mixed with the ores, and the copper they contain can be obtained by cementation with old iron. According to the analysis made by Becquerel, in conjunction with Berthier and Dumas, it appears that the reduction of copper by electricity, on a large scale, would be productive of great profit.—C.: Paddington, April 26.

[We gave a description of this process in the *Mining Journal* of May 22, 1847; but as the subject is of much interest, and the process about to be carried out on a large scale, we need offer no excuse for its repetition.]

IMPROVEMENTS IN IRON MANUFACTURES.

Sir,—Perceiving, in your last week's Number, under the head of “Improvements in Iron Manufacture,” a notice of a machine, alleged to be invented by Mr. Wetherill, of New York, for twisting iron, I beg to refer you to the illustrated description you gave of my twisting machine, in your *Journal* of the 4th March last, when you will find that the principles of both are precisely alike; and, when I inform you that not only have I the precedence of him (my patent being dated Nov. 7, 1846, whilst his was only enrolled in January last), but that, on becoming acquainted with this fact, from some specimens of mine he saw on the Great Western Railway, he accompanied by his patent agent, visited our works, saw my machine, wished to make an arrangement to join me in the matter, and that the agent afterwards wrote me several letters on the subject, you will, I trust, do me the justice to notice these facts in the next Number of your *Journal*. Of course, so far as this country is concerned, his patent is null and void.—THOMAS MELLING: Rainhill Iron-Works, Prescot, April 27.

THE PATENT LAWS.

Sir,—Having for years felt very strongly the inconsistency and gross injustice of the working of our laws of patent right, and been greatly surprised that no person, or parties interested, have ever brought the subject in a tangible shape before the public, for the purpose of obtaining a clear, intelligible, and definitive law, for the secure protection of inventions, and improvements from piracy, it was, with much pleasure, I observed that Mr. Campin (the patent agent of the Strand) has stood forth as the champion of inventors, and prepared a petition for presentation to the Legislature, for a thorough reform of the Patent Laws. I have carefully read the petition, as published in the *Mining Journal* of the 8th inst., and perfectly agree with the proposed grounds on which the clauses of a new bill should be founded. There would, of course, be many details in the bill which are not embodied in the petition—as I think wisely—as brevity and terseness, in such a document, are much more likely to meet the attention of the Houses of Parliament, than a laboured and lengthy production. Notwithstanding there has been some correspondence on this question in your valuable columns since the date above-mentioned; we have not yet been informed how Mr. Campin intends to proceed, and whether the petition is lying for signature, or where? If so, I would recommend that care be taken, as far as it is possible, that the signatures are *bona fide* by parties interested in a reform of the Patent Laws, and that the parchment sheets be ruled in three columns, for name, address, and trade or profession. A moderate number of such signatures having far greater weight than a heterogeneous multitude of names, by parties whom nobody knows, and to whom the subject matter of the petition is wholly uninteresting. I would take the liberty of suggesting to Mr. Campin the desirability of a public meeting being held, for a discussion on the inconsistency of the present laws, and the alterations and improvements required to foster native talent and inventions; all persons attending such meeting to sign their names as they enter, and thus give a security for the undoubted legitimate character of the meeting, at which, doubtless, a large number of influential signatures might be obtained. The few parties interested in the abuses of the Patent Office, Rolls Office, and Petty Bag Office, are but as nothing compared with the great importance of supporting and protecting British art; and, I believe, the time is not far distant, when the present system and its drones will be swept away by the beam of justice and improvement, and one adopted, founded on principles of economy, security, and right.

Five-street, April 26.

THE PATENT LAWS.

Sir,—In reference to Mr. Campin's petition, contained in your *Journal* of the 15th inst., it may be remarked, that the laws in general, and the patent laws in particular, are by far too little known by the great mass of the people. The fact, of the pyramid of society being shaken at the base, whilst the superstructure “reels too and fro, and staggers like a drunken man,” is a proof that modern legislative remedies have, upon the whole, been worse than the disease. Pounds, shillings, and pence, have been the golden image set up, while human nature and the rights of man have been left sight of and forgotten. Our ancient enactments were founded in justice, and were, consequently, simple, concise, and explicit; while modern statutes have completely mystified them. A multiplication of patents and registered designs may but enhance the misery of the patriotic contenders for monopoly. The dating of patents on the day of application, will, if made fully beneficial to the inventor, be almost as bad as an *ex-post-facto* law, with respect to the public at large; Mr. Campin's other suggested improvements appear to be good. As to Boards and Commissioners, Heaven knows we have had enough of such unconstitutional bodies—sitting, incubus-like, on the sinews of British industry. A. T. J. MARTIN. Penzance, April 25.

REFORM OF THE PATENT LAWS.

Sir,—I perceive, from a letter of Mr. Campin's, given in last week's *Mining Journal*, that he has mistaken my second suggestion, given in my letter on the Patent Laws, which appeared in your *Journal* of April 15, inferring therefrom that I proposed a commission to report upon improvements, previous to their being patented. What I intended to imply was, that a board of competent and impartial persons was a thing much to be desired, whose duty it would be to direct capitalists and the public generally in the choice and encouragement of such patented inventions as were calculated at once to advance the interest of individuals and the public; but, at the same time, leaving it optional with inventors to submit their invention for the opinion of such board or not, as they may deem fit. Having no wish to be of the number of impracticables, who, because they are not able to obtain all that justice demands, withhold their support from those who labour for progression, I retain undiminished my feelings of gratitude for the part Mr. Campin has taken, and still wish him success in his efforts. In this case I am not merely giving utterance to my own sentiments, but pleading the cause of a numerous class of persons, who, I repeat, have done more to advance man's physical well-being than any other class. The qualities of mind which ensure successful invention are rather the direct gift of God than derived from education, depending more for success upon demonstrative experiment than upon learned advocacy, resulting from mental propositions, which, to be successful, must be in rigid conformity with the laws of Nature, and not upon scholastic disquisition—very much of which, by-the-by, could it be brought to the same unerring scrutiny, would lose much of its imposing air. Owing to these necessary conditions to success, it has not hitherto happened that very many of the great and the learned have been successful labourers in this productive department—a department in which the Author of our being has given so much power to man to control and render the elements instrumental to his comfort, and conducive to his pleasure. Perhaps, herein is one reason why, whilst inventors have done so much for others, so little has been done for them in return; but, further, I must confess my inability to discern the great difference of the property of copyright and that of invention, which to Mr. Campin seems so very plain, and which (he says) constitutes the great and distinctive difference between the property-right of authorship and that of invention. He says, at least, in the higher classes of composition, that such works are the result of genius and imagination; but that invention, as regards the useful arts, is chiefly the result of experience and perseverance.

It is rather unfortunate, for this latter conclusion, that scarcely any of those great improvements, from which as from a centre have emanated such great and invaluable results, have been originated by those whose avocations could furnish them with the experience, or admit of the perseverance, from which it is here supposed they arise. I need not give instances in proof of this, as Mr. Campin's experience, as a patent agent, must have familiarised him with this fact. It is true, indeed, that, to perfect the details, and to introduce such inventions, experience, patience, and perseverance are required. Mr. Campin further enforces his views by directing us to the writings of Milton, Locke, and Newton, as convincing evidence of the superior property claims which authorship possesses, because (as he says) it is exclusively the result of genius and imagination. He cites Hindmarsh on the Patent Laws; but I prefer going to those great worthies themselves, and from them learn the origin of their productions, and the powers of mind, whereby they were realised.

We find, then, according to Locke, that the origin of the essay on the *Human Understanding* was a puzzling question, discussed by him and a few of his friends—the doubts about which they could not resolve; whereupon the mind of Locke extends its inquiry beyond the beaten track; and asks the question, if it were not first necessary to inquire into the ability and objects of the human understanding? Here we have the germ—the origin of that which, he tells his readers, application enabled him to unfold in detail. The origin of Newton's grand discovery, relating to gravity and the heavenly bodies, was similar, as we gather from his own writings:—“Sitting in a garden alone, he puts to himself the question, ‘if, as the power of gravity is not sensibly diminished at the top of the loftiest building, may it not extend to the moon?’ and, in reply to a congratulatory address of a friend on the grandeur of his discovery, the substance of his reply was—‘if he had made any discovery, it was the result of close intention of mind and assiduous application.’” Here, then, these men clearly tell us, that the origin of their valuable discoveries consisted in allowing the mind to extend its range beyond the common and beaten track, by which the hints were afforded which, by their assiduous application, produced the astonishing results.

If we inquire into the origin of Watt's improvements, and the powers of mind exercised by him for their attainment, we shall find that they were similar to those of Locke and of Newton—I say similar, for it is not my intention here to determine the proportionate strength of such powers. Mr. Campin intimates further, that, if Watt had not conceived or published his invention, it would most probably have been discovered long ere now; but does it not occur to Mr. Campin, that, if Locke and Newton had not made their discoveries, that the same thing may have happened in relation to them? For it must be borne in mind, that the laws relating to the human understanding and to gravity have been as much before, and under the notice of, men as those which relate to the steam-engine—nay, further, we see them all alike neglected for all useful purposes, until a very modern date. But I must not forget Milton and his *Paradise Lost*; and here I shall grant Mr. Campin that, in reference to poetical composition, the remarks, quoted from the *Treatise on the Patent Laws*, are correct—viz.: “If Milton had not written *Paradise Lost*, it is extremely improbable that it would ever have been written at all.” True; but why? because, in poetical composition, the complex ideas are purely the creation of the individual mind, and not necessarily copies of anything actually existing. Bearing this in mind, and referring to the troubled time in which Milton lived, to his domestic afflictions, and his ardent aspiration for the liberties of his country, it is highly probable that a poem exactly resembling such, would never have been produced.

In reply to Mr. Campin's observations, that inventions are rather improvements upon improvements than originalities, this remark is equally applicable, even to those noble authors of whom we have been speaking. Milton himself was possessed of a knowledge of the poetry and learning of the ancients, and had before him the *Iliad* as his prototype; whilst Locke and Newton possessed a knowledge of what others had achieved before them. Mr. Campin further observes, that the invention of the average run of improvements does not stand on such high ground as the above authors; but does it not occur to him, that the average run of authors have as little pretensions to stand on such high ground as the men above alluded to? Yet the law ensures to all authors alike the right to their labours; but it is said, that the policy of extending the property right of inventions for the author's life would be very questionable. Why so? If the invention be good for nothing, no one would lose by it; and, if really valuable, who has so fair a claim to a small moiety of such value as those who are instrumental to its realisation? In other matters, we hesitate not even to draw from the pockets of the people large sums of money, for services which are often of very questionable value. Is it bad policy, then, to allow inventors moderately to reward themselves out of the much they produce, and of which mankind are the recipients? I must, Sir, apologise for trespassing so far upon your valuable space; but as I have been pleading the cause of the unprotected and neglected, I feel assured of your indulgence.—T. CHADDOCK: Birmingham, April 26.

EASTERN ARCHIPELAGO COMPANY.—Incorporated by ROYAL CHARTER.
Capital £200,000, in 2000 shares, of £100 each.
CHAIRMAN—JOHN MACGREGOR, Esq., M.P.
BANKERS—Messrs. Glyn and Co.
The objects of this company are to carry on MINING, AGRICULTURAL, and TRADING OPERATIONS in the EASTERN ARCHIPELAGO, and the ACQUIRING and DISPOSING OF LANDS in the island of LABUAN and the parts adjacent (Borneo)—a region abounding in mineral wealth—most fertile in all the valuable tropical productions, and very happily situated for the purposes of commerce. The working of secure mines in those districts, so highly important to the promotion and extension of efficient and economical steam communication with our eastern possessions, will form a main feature in this company's operations.
By virtue of the company's charter, each shareholder's responsibility is limited to the amount of his subscription, and the capital may be increased to £400,000, and further increased, with the consent of the Board of Trade.
A detailed prospectus, with a form of application for shares, and an inspection of a copy of the charter, may be obtained at Messrs. GLEDSTANE & CO.'S, 5, White Lion-court, Cornhill.

PATENT TIDAL WHEEL COMPANY.—(Completely Registered).—The directors of this company beg to inform Contractors, Millers, and others, who may be desirous of availing themselves of the use of their PATENT WHEEL, by which a considerable saving is effected, that the company being now completely registered, they are prepared to RECEIVE PROPOSALS FOR LICENSES, which will be entertained with the least possible delay.
Applications are requested to be accompanied by a statement of the situation where a mill is proposed to be erected—the depth of water and velocity of current in feet per minute, and also the amount of power desired.
A model wheel, 7 feet in diameter, may be inspected at the company's offices, where also full information relative to the invention may be obtained, by previous communication with the secretary.
FREDERICK BENNETT, Secretary.
Offices, 1, Walbrook-buildings, Mansion-house, London.

PROFESSIONAL LIFE ASSURANCE COMPANY.
Connecting the Clerical, Legal, Military, Naval, and Medical professions, and holding out advantages to the public not hitherto offered by any similar Institution.
Established upon the mixed, mutual, and proprietary principle.
Rates essentially moderate.—Every description of policy granted. Immediate, survivorship, and deferred annuities; and endowments to widows, children, and others.—Every policy (except only in cases of personation), indisputable.—The assured permitted to go to and reside in Canada, Nova Scotia, New Brunswick, Australia, Madeira, Cape of Good Hope, and Prince Edward's Island, without additional premium.—Medical men remunerated for their reports.—Loans granted on real or personal security.—One-tenth of the entire profits appropriated for the relief of the assured while living, and of his widow and orphans.—Annuities granted in the event of blindness, insanity, paralysis, accidents, and any other bodily or mental affliction, disabling the parties.—Persons of every class and degree admitted to all the advantages of the corporation.—Rates for assuring £100 at the age of 25, 35, 45, and 55, respectively—namely, £1 1s. 6d., £2 5s. 6d., £3 4s. 3d., and £4 18s. 6d.
Prospectuses, with full details, may be had at the office.—Applications requested from parties desirous of becoming agents.
EDWARD BAYLIS, Actuary and Secretary.
Offices, 76, Chancery-lane, London.

NATIONAL LOAN FUND LIFE ASSURANCE SOCIETY.
26, CORNHILL, LONDON.
Capital £500,000.—Empowered by Act of Parliament.
This Institution embraces important and substantial advantages with respect to Life Assurance and Deferred Annuities. The assured has, on all occasions, the power to borrow, without expense or forfeiture of the policy, two-thirds of the premiums paid (see table); also the option of selecting benefits, and the conversion of his interests to meet other conveniences or necessity.
Assurances for terms of years are granted on the lowest possible rates.

DIVISION OF PROFITS.
The remarkable success and increasing prosperity of the society has enabled the directors, at the last annual investigation, to declare a fourth bonus, varying from 35 to 85 per cent. on the premiums paid on each policy effected on the profit scale.

EXAMPLES.

Sum.	Prem.	Year.	Bonus added.	Bonus in Cash.	Permanent reduction of Premium.	Assured may Borrow.
£1000	40 3 4	1883	£217 15 1	£109 0 11	£16 0 4	£445 0 0
		1884	192 3 0	87 1 4	13 10 2	395 11 1
		1885	165 11 10	74 1 9	11 3 1	346 2 3
		1886	116 7 6	54 0 10	7 18 10	296 13 3
		1887	111 6 8	49 10 0	7 10 4	247 4 5

The division of profits is annual, and the next will be made in December of the present year.
F. FERGUSON CAMROUX, Secretary.

THE PATENT OFFICE AND DESIGNS REGISTRY.
No. 210, STRAND, LONDON.
INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION OF INVENTIONS and DESIGNS, with Reduced Scale of Fees.
Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.
Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.
Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

GOLDSOPE SILVER AND COPPER MINE, in the VALE OF NEWLANDS, KESWICK, CUMBERLAND.
Capital £10,240, in 2048 shares, of £5 each.—Deposit £2 per share.
ON THE COST-BOOK SYSTEM.
OFFICES—ROYAL BRITISH AND FOREIGN MINING OFFICES, 140, STRAND, LONDON.
This ancient COPPER MINE is now reworking with great advantage, and only 875 shares remain for the public, for which applications should be addressed to the above offices, where detailed prospectuses, reports, and plans, with specimens of the mine, may be seen. Further information may be had on applying to the manager, Captain W. Clemence, on the mine.

MINING IN NOVA SCOTIA.
The rapidly increasing emigration to our American colonies, and the rapidity with which the population is extending, both in them and the United States, render it a matter of certainty that the iron manufacture of those provinces must be, for a long period, insufficient for the supply of the numerous and daily additional purposes to which that metal is now applied, and that increased importation from England or Belgium must be resorted to, or new fields for enterprise opened out in the iron districts of North America or Canada. Under these circumstances, it gives us pleasure to notice the formation of a company under the title of the LONDONDERRY MINING COMPANY OF NOVA SCOTIA, for working a mine of rich iron ore in our own colony of Nova Scotia, and which would appear from the reports of Dr. Gesner and J. W. Dawson, Esq., provincial geologists, and those of Dr. Ure and Mr. Robert Mushet, in England, to be capable of producing bar-iron and steel equal to any yet found in Europe.
The ores consist of the hydrate and common brown, red, and yellow oxides, hematites, micaceous ore, and compact masses of specular iron. These immense deposits are said to be perfectly inexhaustible, and are situated about a furlong from the Folly river, where there is rapid water-power, sufficient for propelling every description of machinery requisite in the manufacture of iron and steel; the whole country is covered with wood, suitable for fuel, or other purposes. The mine is situated about 70 miles from Halifax, and seven from a good shipping place, in the Bay of Fundy; and the Halifax and Quebec Railway is laid out to run close by the property. No situation, in fact, could be more favourable for the smelting and manufacture of iron and steel.
The extent of the property is about 5000 acres, which is to be purchased by the company for 30,000l.—5000l. to be paid down in cash, and the remaining 25,000l. in shares of the company, who will be possessors of the property in fee simple. The capital proposed to be raised is 30,000l., in 2000 shares, of 40l. each. The provisional directors consist of highly-respectable names in the colony, who are to continue in office until superseded or confirmed by a vote of the London shareholders. For further particulars see advertisement.

SPEED AND POWER OF THE LOCOMOTIVE.—The extraordinary performance of 53 miles, within 50 minutes, was achieved on Wednesday morning, with the usual 950 down express train from Paddington. The train consisted of five carriages, weighing about 50 tons, and was attached to the *Essex*, one of the new class of 8-ft. driving-wheel engines, with 18-inch cylinders, and 24-in. stroke. The train started from Paddington at 9:51:55, and the engine entered Didcot station precisely at 10:41:45, having, therefore, ran the 53 miles in 49 min. 55 sec., or at the rate of 64 miles an hour for the whole distance. The greater portion of the journey, between the fourth mile-post and Reading, was performed at nearly 70 miles an hour, and several miles were gone over each in 49 sec., the engine never going over a mile in 48 sec., or at the rate of 75 miles per hour. We believe this speed is the greatest ever maintained, even on the broad-gauge. The train was detained 4 min. 25 sec. at Didcot, and arrived at Swindon at 11:53, running the 77 miles in 70 min. 58 sec., including the time lost while at a state of rest at Didcot, as well as the time lost in getting up speed when departing from Paddington and Didcot, and reducing it when arriving at the latter place and at Swindon.—*Herald.*

THE LARGEST MAGNET IN THE WORLD IN PUTNEY COLLEGE.—We are glad to find that an institution in which we take some interest—the college at Putney—takes so much of the improving spirit of the age. Dr. Lyon Playfair has lately constructed an electro-magnet, larger than any hitherto made, and we shall be curious to hear what new facts it may bring to light. A new department has also been added to the chemistry course, for special instruction in metallurgy, by manipulation and assaying. The Admiralty experiments on coals for the steam navy are continued here, on the buildings erected by Government for that purpose. The report already presented to Parliament of the progress hitherto made, promises that this investigation will be one of national importance.

CALEDONIAN RAILWAY COMPANY.—LOANS ON DEBENTURES.—TENDERS FOR LOANS ON DEBENTURE BONDS are now RECEIVED in sums of not less than £500, for any number of years not exceeding five. Interest to be at the rate of 5 per cent. per annum, payable half-yearly, in London, Edinburgh, Glasgow, or in any country bank.
Tenders to be addressed to this office, giving full name and address of lender.—Parties may also communicate with Messrs. Foster and Braithwaite, 68, Old Broad-street, London.
By order, D. HANKINE, Treasurer.
Caledonian Railway Office, Edinburgh, Feb. 25, 1848.

STEAM TO INDIA AND CHINA, via EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.
THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY
BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th; and from Suez on or about the 10th of every month.
For rates of passage-money, plans of the steamers, and to secure passages, apply at the company's offices, No. 122, Leadenhall-street, London.

TO FAMILIES about to VISIT ITALY.—STEAM direct from SOUTHAMPTON to GENOA, LEGHORN, and CIVITA VECCHIA. The next departure for the above ports will be the Peninsular and Oriental Company's steamship *IBERIA*, Captain C. F. BURNETT, on Saturday, April 29, at Two P.M. This vessel has been fitted expressly for first-class passengers and their servants. Horses and carriages taken on deck. Private cabins can be secured by early application. Rates of passage and plans of the vessels may be obtained at the company's offices, No. 122, Leadenhall-street.

TO ENGINEERS AND BOILER-MAKERS.
LAP-WELDED IRON TUBES, FOR MARINE AND LOCOMOTIVE STEAM-BOILERS.
TUBES FOR STEAM, GAS, AND OTHER PURPOSES, ALL SORTS OF GAS FITTINGS.
THE BIRMINGHAM PATENT IRON TUBE COMPANY.
42, CAMBRIDGE-STREET, BIRMINGHAM, & SMETWICK, STAFFORDSHIRE.
MANUFACTURE BOILER and GAS TUBES, under an exclusive License from Mr. R. Prosser, the patentee. These tubes are very extensively used in the boilers of marine and locomotive steam-engines in England and on the Continent—are stronger, lighter, cheaper, and more durable than brass or copper tubes, and are warranted not to open in the weld.
42, CAMBRIDGE-STREET, CRESCENT, BIRMINGHAM.
WORKS—SMETWICK, STAFFORDSHIRE.
LONDON WAREHOUSE—No. 68, UPPER THAMES-STREET.

LAP-WELDED IRON TUBES.
W. H. RICHARDSON, Jun., and CO.,
MANUFACTURE every description of WROUGHT-IRON TUBES, for Locomotive and Marine Boilers, Gas, Steam, and other purposes.
PATENT TUBE WORKS,
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LAMBERT'S PATENT FLEXIBLE DIAPHRAGM
WATER VALVES, OR TAPS.—A certain PREVENTATIVE OF LEAKAGE, superseding the use of the metal plug-tap, which is so continually out of order. They are more durable, less expensive, and being nearly frictionless, are opened and closed with perfect ease. They have been tested under various pressures, and have given the greatest satisfaction.—MANUFACTURED ONLY by the Patentees,
THOMAS LAMBERT & SON, Brass and Cook Founders,
30, New-cut, Blackfriars-road.

PATENT FLEXIBLE INDIA-RUBBER PIPES AND TUBING, for Railway Companies, Brewers, Distillers, Fire-Engines, Gas Companies, Gardening and Agricultural purposes, &c.
THE PATENT VULCANISED INDIA-RUBBER HOSE-PIPES are made to stand hot liquor and acids, without injury—do not become hard or stiff in any temperature (but are always perfectly flexible); and as they require no APPLICATION of oil or dressing, are particularly well adapted for Fire Engines, Pumps, Gas, Beer-Engines, Gardens, and all purposes where a perfectly Flexible Pipe is required.
Made all sizes, from 1-inch bore upwards, and of any length to order.
Vulcanised India Rubber Garden Hose, fitted with brass-taps. Copper branch and Rose's complete, ready to be attached to pumps, water-butts, or cisterns.
Sole manufacturer, JAMES LYNE HANCOCK, Goswell Mews, Goswell-road, London.
N.B.—Vulcanised India-Rubber Washers, of all sizes, for joints of hot-water and steam-pipes, and Vulcanised Sheet Rubber, any thickness, for all kinds of joints, and other purposes.

PATENT ALKALI COMPANY'S IRON PAINT.—This PAINT, now first offered to the public, is the PRODUCT of a PATENT PROCESS, and possesses VALUABLE and PECULIAR QUALITIES, not otherwise attainable. Its colour is a purple-brown—it is perfectly innocuous—is far more durable than lead paint, and two coats are fully equal to three of any other paint. A single coat will be sufficient to demonstrate this. It dries rapidly, and its durability is very great.
From its chemical composition, it is especially, and above all other paints, adapted to covering iron; also wood, and stucco, or brick walls. The peculiar oxidation of the base of this paint makes it impossible that further change should take place in its composition. Its identity with iron secures it from galvanic action, so injurious to the durability of much metal work. It has been exposed on shipping to the action of seawater, and the sulphuretted hydrogen, so prevalent in sea-ports and tidal harbours, for three years, without change.
Its cheapness and strength render it admirably adapted for iron railings, farm buildings, and shipping. It will also cover creosoted timber. Price, by the ton, £20, delivered in London. All orders to be addressed to the offices of the company, 20, Fenchurch-street, London; where testimonials may be seen as to the value of the paint.
EVANS, BROTHERS, Agents.

IMPORTANT TO RAILWAY AND STEAM NAVIGATION COMPANIES, MANUFACTURERS, AND ENGINEERS.
W. BROTHERTON AND CO.'S
PATENT LUBRICATING FLUID (or ANTIMONY) FOR ALL DESCRIPTIONS OF MACHINERY.

W. D. & CO. have the pleasure to state, that the above article is extensively used in Her Majesty's Steam Navy, and by several of the principal Steam Navigation and Railway Companies, and is pronounced by them, and by the first practical engineers of the day, to be far better adapted for the purposes of lubrication than any other article hitherto used for such purposes. The Patent Lubricating Fluid is equally applicable for the most intricate and fine pieces of machinery, as for the heaviest bearings of the steam-engine. It is cheaper, much more economical, and cleaner than oil as presently in use; is free from smell, and calculated to effect a vast saving in the expenditure of working steam powers. Further particulars can be had, and testimonials seen, by application to the manufacturers, W. BROTHERTON & CO., Hungerford Wharf, Strand, London.
N.B.—The above article will burn in lamps, and give a light equal to the best sperm oil.

FOURDRINIER'S PATENT SAFETY APPARATUS, for PREVENTING ACCIDENTS IN MINES AND OTHER PLACES, WHEN THE ROPE OR CHAIN BREAKS.

By the ADOPTION of this INVENTION the LIVES of the WORKING MINERS may be PRESERVED, and the PROPERTY of the MINE OWNERS PROTECTED from the serious consequences of either of the following accidents—
1. From the men, or the load, being precipitated to the bottom of the shaft when the rope or chain breaks: in this case the apparatus is self-acting.
2. From either the men, or load, being drawn over the pulley: in this case, also, the apparatus is self-acting.
3. From the fearful consequences to men or load of a "whirl," or run: in this case the result is equally certain.

A COAL PIT, with the SAFETY APPARATUS ATTACHED to the CAGE, is daily at WORK near BUSLEM, in the STAFFORDSHIRE POTTERIES.
To inspect the apparatus, or to obtain any further information, application may be made to Mr. Edward N. Palmer (the patentee), Chisleton, near Leek, Staffordshire; or to Mr. Joseph Fourdrinier, 68, Arlington-street, Camden Town, London—who are prepared to GRANT LICENSES for the USE of the PATENT.

PATENT GALVANISED IRON AND WIRE ROPE WORKS, MILLWALL, POPLAR.
ANDREW SMITH begs to inform the Mining, Railway, and Shipping Interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton, instead of £20, under the ordinary process. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging.

UNDER BRITISH AND FOREIGN LETTERS PATENT.
TO CAPITALIST—FIRST-CLASS INVESTMENT.—SHARES TO BE DISPOSED OF, in valuable patents, recently sealed, and in works connected therewith. The produce of soft stone, chalk, and sand quarries, is increased and rendered impervious to wet, frost, vermin, &c.; also plaster of Paris, carton-roof-shedding, &c., for all building and other purposes.
Further particulars, and various specimens to be seen, at Messrs. Hutchison, Wilson, and Co., the patentees, East Temple Chambers, 2, Whitefriars-street, Fleet-st., London.

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 23, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from £5 to £10 extra. Gold horizontal watches, with gold dials, from 8s. to 12s. each.

DENT'S PATENT DYEDIOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

LONDON AND PROVINCIAL DETECTIVE ASSOCIATION, FOR THE PROTECTION OF TRADE.
No. 39, SOUTHAMPTON-BUILDINGS, HOLBORN, LONDON.

Office hours: TEN TO FOUR.
The object of this institution is to furnish every information (which may be obtained by subscribers only) respecting all parties, in any capacity whatever, avoiding their creditors, under any circumstances; also, in providing every species of information calculated to protect Bankers, Merchants, Tradesmen, Companies, Institutions, Assurance Offices, &c. in Societies, Auctioneers, Landlords, Tenants, &c., in such a manner hitherto unattainable by any kindred society.
Subscribers may be preserved from losses through fraud of all kinds, by previous application at this office. They are also requested to make every communication in their power that may tend to protect the members, which will be considered strictly private, and, at the same time, deemed a favour.
Persons wishing to become members of this association, must apply, by letter only, addressed (pre-paid) to the secretary, who will forward the rules.
Subscribers only are eligible to apply for any information—the terms of which are 2s. 1s. per annum—15s. 6d. in advance.
H. E. NEWMAN, Secretary.

LONDONDERRY MINING COMPANY OF NOVA SCOTIA.—Capital £33,000.
In 2000 shares, of £10 each—payable in calls not exceeding 25 per cent., and the aggregate amount of calls, in any one year, not to exceed 40 per cent.
Incorporated by Act of the provincial Parliament.
The following directors have been named in the Act (together with other persons), as constituting the corporation, and they are to continue in office until superseded by a vote of the London shareholders—viz.:
The Hon. W. A. BLACK, } Members of the Legislative Council.
The Hon. J. E. FAIRBANKS, }
The Hon. ALEX. KEITH, }
J. W. JOHNSTON, Esq., Advocate General.
JAMES TREMAYN, Esq., }
ANDREW M'KINLEY, Esq., }
JOHN TEMPEST, Esq., }
BENJAMIN ETTER BLACK, Esq., }
WILLIAM CLARK, Esq., }
JOHN M'GREGOR, Esq., }
JOHN ROSS, Esq., }

This company has been formed for the purpose of working a mine, recently discovered, of IRON ORE, of superior quality and richness, situated in the province of Nova Scotia, about 70 miles from Halifax, and about 7 miles from a good shipping port in the Bay of Fundy. This extraordinary deposit of specular iron ore has been surveyed by Dr. Gesner and J. W. Dawson, Esq., provincial geologists—gentlemen well known for their geological attainments to Professor Lyell, of this metropolis. Extracts from their reports are embodied in a prospectus.

Dr. Gesner remarks—"From the character of the district where the iron is situated, I am of opinion, that the rocks are highly metalliferous; and it is probable that other ores, besides those already noticed, will yet be discovered."
An arrangement has been made with the proprietor for the purchase of the whole of his property in the neighbourhood, amounting to about 3000 acres. The whole of the veins, containing the ores, about 24 miles in length, are included within his estates. The terms arranged with him are desirable for the company, and will place the property in the hands of the company at a comparatively small advance. He is desirous to promote the undertaking, and advance its success, and purposes himself to become a large shareholder. The grant from the Crown, of about 3800 acres, having originally been what is termed a free grant, the company will be possessors of the property in fee simple, and will be free from all payments of royalty. The price agreed upon for the property is £20,000, of which about £2000 is to be paid on a mining possession, and the remainder is to be paid in shares. The proprietor is to receive the stipulated sum of £20,000, and shares upon which the company is to acknowledge having received calls to the extent of £25,000, and he is immediately to give the company a discharge from all claims on account of purchases, in terms of the Act. On no other conditions, than receiving the principal payment in shares, will he part with the property.

At the commencement it may be advisable to expend, in the erection of furnaces, &c., for the production of iron and steel, about £20,000. These buildings and expenses will give facilities for the production of 200 tons weekly, or 10,000 tons annually.

The materials for this production would require, per annum—

32,000 tons of iron ore and flux, costing 5s. per ton	£8,000
8,000 tons charcoal, costing 20s. per ton	8,000
Labour and superintendence	4,000
Interest on capital, including purchase-money	3,000
Duty in the United States—30 per cent. on prime cost	6,900
Freight, commission, insurance, and carriage to shipping—say 20s. per ton	10,000
Add for contingencies	5,000
Scotch pig-iron was selling in New York, with March, 1848, at	—
withstanding the present depression, at 52 per ton, equal to	£44,900
£5 10s. sterling; charcoal iron is worth 5s per ton more—10,000 tons, at £7 10s. per ton, would be	75,000

Leaving profit of £30,100
At an expense, not exceeding £5 per ton, the pig-iron might be converted into bar-iron, equal in quality to the best marks of Swedish steel-iron, now worth in the English market about £30 per ton. The intended railway, between Halifax and Quebec, will pass through the property of the company, affording great facilities for conveying the produce of the mine to the best markets. The Act of Incorporation limits the liability of the shareholders to the amount of the shares standing in their names.

A quantity of the ore, taken fairly from the mine, together with specimens of iron and steel produced from the ore, by Mr. Mushet, Coleford, Gloucestershire, as mentioned in his report, may be seen at Messrs. C. Walton and Son, 73, Cornhill.
Specimens of the ores have been submitted to Dr. Andrew Ure, who has analyzed them, and a copy of his report is annexed.

Extract from Dr. Andrew Ure's Report.
"Glance iron ore, or specular iron, from its mirror-like lustre, in compact masses, easily pulverised into a brilliant, fine, soft, scaly powder. This is pure peroxide of iron—100 parts containing 99 per cent. of the peroxide, and consists, therefore, of very nearly 70 of metal, and 30 of oxygen. When smelted, 100 parts yield 75 of cast-iron—the increased weight above the 70 being due to combined carbon. Its specific gravity is 4.72."

A report upon the nature and quality of the specular ore of the micaceous variety, from the mines belonging to John Ross, Esq., of Truro, Nova Scotia.
The ore was forwarded to me for examination, and to determine in how far it might prove suitable for the manufacture therefrom of cast-iron, bar-iron, and steel, of a good and marketable value.

The ore consisted of soft unctuous masses of micaceous oxide of iron, resembling black-lead in its appearance, and staining the fingers after the manner of rich plumage. It contained a considerable quantity of the ore, in lumps, was deprived of its oxygen and moisture, by a gentle cementation in powdered charcoal. After the cementation had been completed, there remained of soft pure malleable iron, 68.29 per cent. of the weight of ore operated upon, and the loss in oxygen and moisture during cementation amounted to 31.71 upon that weight.

The ore in cementation readily parts with its oxygen, and is completely metallised in the cementing furnace, when stratified with about one-sixth of its weight of wood charcoal, and the subsequent processes, in converting the cemented ore into bar-iron and steel, are all attended with certainty and certainty, which speak volumes to my mind in favour of the purity and excellence of this ore, as applied to iron and steel making in all their branches. I have no hesitation in affirming, that the smelting of these ores, which are said to be inexhaustible, and the manufacture from them of pig-iron, bar-iron, and especially steel, must prove, under even the most mediocre management, a lucrative undertaking; and one, indeed, as respects the manufacture of steel, of the greatest national importance.

Coleford, March 23, 1848."
(Signed) ROBERT MUSHET.
Prospectuses may be obtained, and specimens of the ore seen, by applying to Messrs. Euston and Brown, 40, Old Broad-street; Messrs. Charles Watson and Sons, 73, Cornhill; or on application to Mr. Henry Emsley, 25, Fleet-street.—Prospectuses can also be had at the office of the Mining Journal, 25, Fleet-street, London.

BANGOR AND COYTMOOR SLATE COMPANY, BANGOR, NORTH WALES.
Provisionally Registered under the Statute.

Capital £50,000, in 5000 shares, of £10 each.—Deposit £2 per share, on complete registration.
DIRECTORS.—GEORGE BURGE, Esq. GEORGE CAPPER, Esq.
WILLIAM S. FOSTER, Esq. JOHN YATES, Esq.
CONSULTING ENGINEER—John Taylor, Jun., Esq., F.G.S.
BANKERS—London Joint-Stock Bank.
SOLICITORS—Messrs. Fyson, Curling, and Hope.
AUDITOR—Mr. J. E. Elsey.
SECRETARY—Mr. William Nicholson.

This company is formed for the purpose of working a portion, consisting of 52 acres, of the Great Bangor Slate Bed, situated about five miles from the port of Bangor, on the London and Holyhead road, and held under a lease, of which 21 years are unexpired. The Coytmor estate adjoins the celebrated quarry belonging to Colonel the Hon. D. Pennant, which has been worked upwards of 70 years, and employs at the present time 2600 men, producing an estimated profit of upwards of £90,000 per annum.

On the same vein or bed, to the south-west, is the quarry of Thomas Asheton Smith, Esq., employing 1500 men, and yielding an estimated profit of £20,000 per annum. These quarries were commenced by an outcrop of a few thousand pounds.

The vein or bed of the Coytmor estate is the same, both in width and quality, as that of Colonel Pennant's and Mr. Asheton Smith's: this is shown by a small adjoining quarry, the Pandraining, worked to the depth of 150 ft., within 20 yards of the boundary of this company's quarry, and by shafts sunk in various parts of the set.

The Bangor and Coytmor Quarries has not yet been worked, except upon trial, but a tunnel 9 ft. by 7 ft. has been driven from the turnpike road, 350 yards through the slate bed, to drain the quarry, and to take off the slate from the lower level, for which a tramway is already laid down. Six years have been occupied in driving the tunnel, which now renders the erection and cost of machinery unnecessary. The tunnel was constructed by the late Mr. Giles, C.E.

The apron, or top of the quarry, consisting of loam and broken slate rock, does not exceed 10 yards in thickness, which may be cleared off within three months, when an unlimited quantity of the best blue and purple slate may be quarried.

Quarrying is chiefly done by planing. The wages paid to the adjoining quarries are under 30s. per thousand: the cartage to the port is 9s. per thousand, or 3s. per ton; the present price of slate, taking the average of Duchesses, Countesses, and Ladies, is about 85s. per thousand, leaving a gross profit, after the quarry has been well opened, of 50 per cent. on the labour expended, and a net profit of upwards of 30 per cent. The profit on the principal quarries along this great bed exceeds that amount.

Such is the repute, and so great is the demand for Bangor slate, that, on an average, throughout the year, from 50 to 60 vessels, of from 50 to 400 tons, lie at the port of Bangor, waiting their turn for cargoes from Colonel Pennant's quarry alone.

During the late panic, when the price of almost every article of commerce was reduced 20 per cent., the list price of the principal slate quarries suffered no diminution. A piece of freehold land, adjoining the Menai Strait at Bangor, has been purchased, on which a wharf, for shipping the slate, may be constructed at a moderate expense.

The capital of the company will be £50,000, but not more than £5 per share, or £30,000 will be called up within the first 12 months, which sum is deemed sufficient to cover the purchase money and all other outlays, and to put the quarries into full operation.

Applications for prospectuses, plans, and shares, to be made to Messrs. Foster, brothers, 25, Tokenhouse-yard; Mr. James Lane, 75, Old Broad-street, broker; or to Mr. Nicholson, at the office of the company, 57, Old Broad-street, London.

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